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EXTRACTS FROM THE WRITINGS OF WILHELM  
GRIESINGER, A PROPHET OF THE NEWER  
PSYCHIATRY.

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(Concluded from page 105.)

## INSTITUTIONS FOR THE INSANE AND THEIR FURTHER DEVELOPMENT IN GERMANY.

On several occasions it has been my duty to express the opinions I have formed concerning institutions for the insane and their general characteristics in the near future. These observations have been set down in manuscript notes which have never been published, in judicial decisions and in private letters. Certain remarks which I made before the Congress of Naturalists,<sup>1</sup> solely for the purpose of setting forth my point of view at that time, were much too brief and expressed in too aphoristic a style not to admit of a certain amount of misinterpretation. On this account it is my intention in the following pages to put down somewhat comprehensively, although of course very briefly, what I consider to be necessary or desirable in the matter of providing for the insane in Germany in the near future; and to show on which side I wish to range myself in the present unquestionable crisis which has been reached in the question of the public care of the mentally afflicted.

<sup>1</sup> Ztschr. f. Psych., xxii, p. 390.

Not that I regard this crisis as in any way calamitous or dangerous. On the contrary, I see in it rather the tokens of a fuller development. To deny that such a burning question exists furthers the matter not a whit; indeed the preformed fixed determination to see in the present conditions the only good and the acme of perfection would go far towards hindering the discovery of the truth. When science is able to establish new points of view, when urgent needs are thereby made manifest, which cannot be satisfied by the methods at present in vogue in the care of the insane, in the face of evident facts it is wrong to ignore or deny the existence of such needs. Nay, it becomes our bounden duty to see that our methods shall be adapted to suit these new requirements.

This is what was done when our present institutions for the insane were founded. And shall we say that to-day no further progress is possible? Nevertheless let us note a statement made a few years ago by a man who is held by most reformers to be an authority, I refer to Damerow, who in an article published in 1862<sup>2</sup> declared that "With our present asylums and infirmaries for the public care of the insane, no further advance or development is possible."

But why no further advance? Certainly not on the grounds which Damerow himself had in view when he made this statement, namely, because the number of patients demanding admission into these public institutions was always increasing and because it was becoming every day more and more impossible to provide means for caring for them all properly along existing lines.

But important as are these factors which depend upon external conditions, still more so are those internal causes that have resulted from the wider development of science. The different standpoints that have been attained through a more accurate knowledge of the pathological conditions concerned, and a more comprehensive utilization of accumulated experience, have opened out to us new ideas in the matter of the public care of the insane.

The great reforms that began to be instituted 40 or 50 years ago came as the result of the recognition—one might almost say the discovery—that a certain proportion of the so-called insane

<sup>2</sup> Ztschr. f. Psych., xix, 1862, p. 187.

were curable. Upon this fundamental truth depend almost all the work that has been done and almost all the advances that have been made in Germany in the public care of the insane. Intimately connected with this idea is the erection of institutions for the treatment of curable cases and those for incurable cases, the combination of the two kinds, and the question, among others, of a future separation or union of the two forms. Moreover, the attempt in dealing with ways and means, to assign a just and impartial share to the curable and incurable affords to-day more anxiety possibly than does any other consideration to those who are occupied with the question of the erection of new insane asylums.

And yet it must be confessed that this conception of curability and incurability, practically and in the light of experience, has not sufficient in it to allow of its being acted upon as a fundamental principle upon which should depend the separation of the institutions. The criteria of curability, in so far as they can be used to determine the admission into certain institutions, are in the highest degree unreliable. Indeed it often happens that only after the reception of the patient can the expert—often too late—arrive at more correct data. The main criterion of curability—or at least the one upon which so much stress is usually laid—namely, the short duration of the disorder, in the loose sense in which the term is generally used, is absolutely false and can only give rise to baseless hopes, as is readily proved by a single glance at the paretics. The word "curable" suits only a very narrow class of patients although it is true that for these it is quite appropriate. Indeed, the conception of curability and incurability has been employed in psychiatry far too often and too loosely. Complete recoveries are not so extraordinarily frequent; indeed as a matter of fact they are possible only in a limited number of cases. Actual practice has always nullified the theories, according to which one class of institutions—whether the two are quite separate or occupy the same grounds—is reserved for curable and another class for incurable cases. It is an open secret that the so-called pure sanatoria (*reine Heilanstalten*) receive far more incurable than curable patients. At any rate I know of no such single institution in Germany, that in actual practice absolutely refuses to receive the most hopeless of all—the paretics. Thus it will be readily seen that the distinction between curability and incurability—since

scientifically it has but a very weak basis and in practice is regarded as an official fiction—can never offer a sound principle for the separation or bringing together of patients into appropriate institutions. Furthermore, it is impossible to imagine, that for all the widely diverse conditions which at the present time we commonly and which we shall continue to term mental disorders, a single method of public care could possibly be adapted; or that for so multiform or even totally heterogeneous needs, one and the same kind of institution could possibly suffice. On the contrary, in my opinion it is our duty to strive even more energetically than we have done as yet to meet the most important of these needs and conditions by contrivances which shall be suitable for each.

For the demands of practical life, as it really exists, I believe that the following may be set forth as a fundamental proposition:

A proper public care for the so-called insane involves two main principles—or in other words two main kinds of institutions, which must, therefore, be kept apart,<sup>3</sup> inasmuch as they demand an absolutely different location, buildings and organizations. In the former we have to provide for a purely temporary, in the latter for a prolonged stay of the patients. The practical arrangements for these two objects are absolutely different, the difference being far greater than that existing at the present day between the institutions for curable and incurable cases respectively. Only for the latter class—those patients whose cases demand a long sojourn—are those special institutions necessary, which are now generally meant when we speak of modern asylums. The proper time of separation, however, is of genuine practical importance; this is easily recognized and its inevitable consequences can be readily arranged for.

Of all the mentally disturbed individuals who are committed as insane only very few are brought into asylums on account of the fact that they are suffering from a certain mental disorder. The majority come to us because of a certain stage of this disease which is associated with, or leads us to fear the occurrence of, disturbances, disorderly conduct or acts, which may have fatal or

<sup>3</sup> Of course I mean when some such separation is possible. On a small scale, where it becomes necessary to provide for only a few dozen patients, such a separation need not be thought of.

unfortunate consequences for the patients or others. Hundreds of individuals who are suffering from the same disease but not to the same degree or with the same manifestations are sent to other, ordinary hospitals, or are treated at home; while others again remain free to go about as usual. It is a matter of experience that this severe grade and that these disturbing or critical manifestations, in the case of the majority of these patients, do not last long and that the marked degree of depression or excitement—which supplies the indication for commitment to an asylum—again disappears after a relatively short time. Often indeed a few weeks or even a few days are sufficient to restore the patient to the condition in which he had remained for years before the transitory exacerbation, frequently caused by some extraneous incident, came on. Every alienist knows that, despite this fact, it would be unwise to let such individuals go immediately. At the same time a large proportion of them need only temporary treatment and care, such as could not possibly demand all the varied and multiform apparatus which is considered as necessary and as an essential part of the modern asylum.

Not until the exaggerated excitement or depression for which, as a rule, such patients have been committed, has passed off, or has remained unaltered for a relatively long period, can the alienist, unless exceptionally, arrive at a true appreciation of the disorder. Then only does it become possible for us to recognize whether we are dealing with a pure mania or melancholia, or with one of these forms appearing in an already mentally enfeebled individual. Then only can we decide whether we have to do with a simple melancholia or with one of the circular forms or the like. Not infrequently one appreciates then for the first time—always I mean by objective examination—whether the case is acute or in all probability quite chronic. Even for the recognition of paresis long observation is often necessary until the first stormy manifestations are over, when for the first time one finds oneself in a position to make a prognosis. Still later it becomes possible to determine more definitely whether the course of the disease renders it possible that an acute ending may be expected. Lastly, one is able to decide whether the individual will ever be capable of returning to private life in any form, completely or partially reestablished in his mental condition despite an apparent hopeless

incurability; or whether, in view of the fact that the psychical disturbance will probably prove to be a lasting one, or still more often, not on this account so much as by reason of unfavorable surroundings or lack of means at home, it appears likely that either permanently, or at least for a long period of time, he must necessarily belong to the number of the chronic insane who have to be cared for at the public charge.

Among all the so-called insane of which the principal classes have been briefly cited by me elsewhere—constitutional forms, localized pathological processes of a paralytic character, accidental brain disturbances of all kinds with marked psychical symptoms—among all these cases are met with which demand only a very short stay in an institution although at times this may have to be repeated several times. Among all also there are not a few patients—even the paretics are no exception to this rule,—as soon as the circumstances outside are favorable—who can again be returned to private life without being fully restored to health. But among all these classes there are also chronic unimproved or incurable cases that need a permanent stay amid special surroundings which must be prepared for them not only on account of their own needs but also of those of society at large. Nevertheless, all this, as we have said, becomes clear, as a rule, only when the acute manifestations have passed away, and that such patients do not demand such peculiar conditions during the acute exacerbations, and that, therefore, they should not have them, constitutes a proposition which can hardly be disputed.

The requirements demanded for the purely transitory reception of individuals suffering from acute disorders may be briefly stated as follows: I would, however, especially emphasize the fact that in speaking of these acute conditions I am not referring to merely recent diseases as curable forms; on the contrary, I would say emphatically that I include also exacerbations of wholly chronic forms, as well as the numerous patients who are discharged from Sanatoria as cured, who I consider resemble hysterical patients whose paroxysms cease for quite a lengthened period.

It is of the utmost importance that every large city should possess in its immediate neighborhood such a place in which acute cases can be received and properly treated, and moreover reception into such an institution must be made easy in every possible way.

The trouble and disturbance which are caused in families of the lower and middle classes by acute conditions, such as a marked grade of melancholia, suicidal out-breaks, alcoholic, erotic and similar excitement, demand immediate assistance and for many cases, especially accidental brain injuries, the curability or incurability may depend largely upon whether the patient is taken from his home a few days earlier or later.

Hence it naturally follows that the reception must be made easy by having a large number of free beds and very low charges for the care given. All public institutions should be for the poor and not for the rich. But among the former one should not include the lower classes only. In Germany, probably to a larger extent than in other countries, there is to be found a class of people who have been brought up carefully and properly educated, but who are without any other means and are therefore dependent upon the regular earnings derived from the exercise of their mental faculties which represent their sole capital. In these cases, as soon as the man falls sick, his income ceases, so that from this very fact it becomes impossible for him in most cases to enter a private asylum. For this class, so numerous in all the large cities and forming so important and interesting part of the community,—school teachers, artists, physicians, clerks, men of letters, merchants and others, for wives, daughters and widows with education, but without means—the reception into these public institutions must be made easy and the internal arrangements must be put on a footing suited to the station of the patients.

A house that is to be used for the transitory reception of patients needs none of the apparatus and furnishings—so costly and that take up so much room—which have been found necessary for the modern insane hospital. A large area of ground becomes impossible on account of the enormous price that would be demanded for it if in close proximity to a large city. And after all what purpose would a large tract serve? The cultivation of land could hardly be demanded at such a place or with such a floating population. A small, but cozy and shady garden, divided into two portions for the two sexes, can readily be acquired near large cities; and for a plentiful supply of fresh air we can depend largely upon large verandahs. There need be no work-shops—every one knows that these are only necessary for Sanatoria. A church

is not necessary; a cozy room will suffice for the patients in which to say their prayers. No large dining rooms, play-grounds, gymnasiums, bowling alleys; no halls for evening parties or for amateur theatricals—all these are useless during the acute conditions and for the relatively short time necessary for convalescence or the passing away of the agitated stage are unnecessary. On the other hand a quiet spot with surroundings as attractive as possible, freedom from the noise and stir of the city, but without any appearance of mystery as though secrets were hidden there, must be provided. These demands, quiet and protection from the hubbub of the great city, are very difficult to obtain satisfactorily. But they must be had, and for this purpose a somewhat large outlay is fully justifiable. To think of obtaining these advantages by seeking the solitude of the country, of course, must not be thought of in connection with this kind of institution. Exceptionally it may be possible, even in the city itself, not perhaps in the central portion, but on the outskirts, to find a quiet attractive place free from these inconveniences and satisfying the main fundamental requirements. In such a case it is far better to utilize it, than to build two miles or so outside the gates. I am well aware that in making this statement I am not in agreement with the alienists of the present day, but I assert what I have learned to recognize to be the truth, after experience and long consideration.

The medical staff in such an institution must be relatively large and must be made up of scientific men. The service in the presence of so many acute cases is necessarily strenuous and the responsibility considerable. On the other hand it is absolutely unnecessary, and indeed in the case of these institutions impossible, that the chief physician should live in the house itself. Even if this arrangement offered any particular advantages, the erection of a separate house for the medical director—which certainly would be demanded by a physician in this position and which would also have to have its offices, garden and so forth—would again complicate the whole matter to a considerable extent and in the neighborhood of a large city would be quite impossible. It is amply sufficient that the chief physician should be expected to visit the institution and spend a considerable time there every day, should see urgent cases a second time in the evening and should take upon himself the full responsibility of the conduct of the establishment,

provided that two or three energetic young alienists, together with a suitable superintendent and one who understands the demands of such an institution from a humane standpoint, reside in the house. That thoroughly competent male and female attendants are indispensable goes without saying. It would be a very desirable arrangement that, whenever a call is received, one of the assistant physicians should be sent as soon as possible to visit the patient in his home, in order that he may be able to determine the exact situation of affairs, the urgency for commitment, and the suitability of the case. Moreover such an arrangement will be specially advantageous, not only because the physician himself can become acquainted with the previous circumstances of the patient and gain some points about the history of the case from the relatives or friends, but because he will then be in a position to take the proper measures for the transportation of the patient to the place that he shall deem most suitable.

These institutions can be and should be small. From 60 to 80 or 150 beds will suffice, according to the size of the city. The change of patients is relatively quick; no one ought to be retained there for longer than a fixed period—at most about one year and only in very exceptional instances for  $1\frac{1}{2}$  years. The acute conditions seldom last long—individual cases of so-called protracted although simple mania in women may be exceptions—the patients either recover or attain a state of quietude; they die or pass into a slow, chronic, quiet condition. The genuine recoveries in asylums in the large majority of cases are obtained in the first six or nine months. Moreover, the marked improvement or disappearance of active symptoms, which permit the incurable patient to be again returned to private life, belong to about the same period. At the same time it becomes easy to determine whether the condition or the means of the patient necessitate prolonged care in an institution for chronic cases. According to my experience in the Charité hospital few of the recent acute cases can be allowed to go as early as after two or three months without detriment. It is also of the greatest importance that the relations should not be allowed to take their friends away without the consent of the officers of the institution and that the latter may be able to readily make arrangements for the proper disposition of incurable patients.

It is absolutely necessary that the institution should stand in

near relation with those of other kinds, so that after due consultation the transfer of cases that are no longer suitable can be brought about without delay. If these facilities are not provided, there must inevitably result that curse to such institutions—over-crowding—which means ruination in every way; which robs them of their distinctive character and sphere of usefulness and converts them into ordinary asylums.

Nearness to a large city is of great advantage also from the fact that it enables a patient who has become quiet to feel that he is not far removed from his family and friends, a feeling which adds to his psychical welfare and contentment. At the same time it helps him to preserve his grasp on his old life and allows of frequent intercourse with the members of his family—a privilege which of course must be regulated by the physician. Again, under these circumstances, it is often possible to find some employment outside the institution. But after all, the most important advantage offered by it lies in the fact that the patient, when quiet, by means of visits to his home of several days duration can make a test of his condition. Next he can be paroled (being committed again at any moment if necessary), and for a prolonged period of time can readily remain under the supervision of the physicians of the institution.

So far as the internal arrangements of these asylums are concerned, the objects to be obtained by treatment afford the only rule to guide us. These are not very different from those which we obtain in the ordinary general hospital. There is no need of splendid buildings or gorgeous fittings; simplicity, but at the same time comfort, are the first considerations. Externally, the house need hardly be distinguishable from a large private residence; there need be no pinnacles and other like foolishness. If space allows the institution can consist of several small houses or pavilions which, however, must never be connected by halls and passages.

In the matter of the internal arrangements, it must be remembered that among its inhabitants will be a number of sufferers from bodily complaints with severe cerebral and nervous symptoms, and general disturbances of nutrition, as well as those who are in a profoundly weak condition. Still further, such places are called upon to accept patients suffering from marked

degrees of excitement. For this reason we shall be going rather below the average when we reckon that, of the inhabitants of the house, about 25 per cent are to be put down as needing perpetual watching and care day and night, so that for them we have to provide a separate suite of rooms (*à surveillance continue*), an observation department. It is important that every newcomer should be kept in this department, for a few days at least, after his arrival, until the physician has become better acquainted with him. For this observation department all that is absolutely necessary would be two rooms for each sex, not very large, but comfortable—a combination of infirmary and *division à surveillance continue*. In addition several separate rooms for bedridden patients or those who need absolute quiet must be provided. On his arrival the patient should not have to pass through long halls or corridors, but should come at once from the reception room, almost from the front door, into the observation apartment, with which are connected a bath room, a simple empty isolation room and a padded room. This forms in reality a separate organized department, and in large establishments of this kind may occupy a separate portion. Need I say that the part of the insane asylums of the present day devoted to cells, with their double corridors, their depressing rooms and their distinctive fragrance (?) are an abomination? The psychiatry of the mad division is as little to my taste as the strait-jacket. For the short isolation necessary, at times for a sojourn of a night, the two rooms mentioned are all that is necessary. This, the most important part of the establishment—which I have briefly described—must have the best and most reliable attendants and can hardly have a sufficient number of visits from the medical staff.

The remaining parts of the house are more easily organized. They are for patients who are not confined to bed, not disturbed, more quiet and more accustomed to their surroundings, for the relatively numerous individuals who waver so long between acute and chronic conditions. Each can consist of three rooms—with proper offices—and if possible each should have its own veranda, but not its own garden. They can be situated further from the center and can form under certain circumstances small wings of the building or even separate pavilions as the case may be. An important requirement that distinguishes these places from ordi-

nary hospitals is the provision of several attractively decorated, light day rooms and dining rooms and a relatively large number of separate bed rooms, which are an absolute necessity for patients of the more cultivated classes described above. Roomy, comfortable bath rooms, fixed up with all the possible contrivances for the use of water, constitute a very important feature of the house.

Furthermore, as an important part in such a scheme, it is necessary that a house, destined for the purposes just mentioned and briefly described, should be intimately connected with another hospital already existing or to be erected. Of this I shall speak more in detail further on.

These institutions may be termed *city asylums*, inasmuch as they are for the service of the city and supply one of its special needs. Whether they should be erected by the city authorities or by the State depends entirely on local conditions and upon the other purposes for which they are intended, especially clinical teaching. Where a whole county is no bigger than a single large city, these institutions should be supplied by the general government and should be established at the chief city or university town. Whether or not neighboring communities should be allowed to share in the benefits of the city asylum, no general rule or principle can be laid down here.

In close connection with the organization of such institutions there is a crying need and a new, most important interest—the question of *psychiatric instruction*. This is absolutely indispensable. Men, in order to give the proper advice to families about the sickness of their relatives, or who are to come into the courts to clear up doubts and answer questions as to the mental condition of individuals, should certainly have a chance of learning something about the subject somewhere. Twenty-two years ago—in the preface to my text-book—I demanded regular psychiatric teaching at the universities. Since that time not a little has been done, but the work is still in its infancy. In Zurich, in the last two summers of my stay there, I held a psychiatric clinic with a scanty material obtained from the old insane asylum, but nevertheless the attendance was so large, my hearers so interested and the benefit so unmistakable that even to-day I look back with the greatest pleasure upon the organization of this small

clinic. Würzburg, Munich and Erlangen had previously been supplied with such clinics. For the last two and a half years Berlin has had a clinic with an organization which has introduced into its curriculum an entirely new element—the simultaneous clinical study of nervous diseases. This innovation opened up a new path for scientific study and will ever remain an example for imitation, of the import of which I shall have something to say further on.\* Göttingen, likewise, for the last two years has had an excellently conducted psychiatric clinic. But in the remaining nine universities, up to the present time, nothing has been done on these lines, or at least we have seen nothing but fruitless, spasmodic efforts, often entirely barren of result. Surely it is high time that the matter should pass from the region of endless debate and be introduced into practical life.

In many places in this connection we have had just what happened when the questions of family treatment, non-restraint and so many other psychiatric advances were first introduced. The highest state authorities were in favor of psychiatric instruction, but when it came to the practical carrying out of the idea, there were introduced, asked and unasked opinions of men who, although probably influenced by the best of intentions, had absolutely no practical knowledge or experience in the question under discussion. Naturally, one might have supposed that, so far as psychiatric clinics were concerned, the judgment of such men would not have been allowed to have much weight—inasmuch as never in their lives had they conducted a psychiatric clinic or, may be, had never even attended one for a single hour. But despite this fact, up to this present time the "ifs" and "buts"—that have years ago a hundred times over been settled by experience, and that nevertheless ever and ever are brought out *ad nauseam*—the talk about the immense difficulties connected with the psychiatric clinics, the fear of enormous expense in connection with immense clinical insane institutions, the wild and perfectly imaginary statement that clinical demonstration injures the patient—all these influences, combined with the *vis inertiae* that clings to all human things—were able to delay in many places this work

\*In another place in this volume there is a detailed report of the Berlin Clinic.

so profitable from the standpoint of the state and of so immeasurable importance, and even to turn the current backward.

I shall certainly allow myself a practical judgment upon this question and I insist most emphatically upon the truth of the following statements:

(1) The carrying on of a psychiatric clinic is a relatively easy task, provided that only experts in the matter are allowed to have to do with it; that we are not led far afield by meaningless objections; that we are ready to devote a sum, that will probably amount to only about half of that contributed to lying-in hospitals and gynecological clinics. And, after all, are these very much more important specialties than psychiatry?

(2) The benefit derived from the psychiatric clinic is so great that it bears no relation to the cost.

(3) In each university there is always to be found a goodly number of men who would wish to attend a well conducted psychiatric clinic, even when there is not the least compulsion in the matter. At the same time the importance of the subject would at first render compulsory attendance at the psychiatric clinic for native students perfectly justifiable.

(4) With regard to any injury that would be done to the patients—about which a good deal of nonsense has lately been talked—there can be no possible fear of any such result in a well conducted clinic. Out of several hundred insane patients that I have shown to my students, I have never found that a single one has experienced the slightest harm. On the contrary, one can often observe that the effect of the demonstration exercises a remarkable and favorable effect. Patients, who as a rule show but little self-restraint, seem to control themselves to meet the occasion; disturbed patients not rarely become more quiet; patients who at other times play the fool, make silly speeches and gestures, lay all such inanities aside; patients who have been sullen and speechless sometimes give expression to their thoughts in a remarkably clear and interesting manner. The patients who understand their surroundings, for the most part are cognizant that such demonstrations are given with a view to instruction, but are in no wise disgruntled by this idea; indeed many of them will do their best to further our object.

For the laity only it is necessary to add that all that I have said holds good for female as well as for male patients.

Thus it will be seen that as regards the benefits, the necessity and the ease with which such a scheme can be carried out, there can no longer be the faintest doubt, and the abundant material, that now year after year is wasted, so far as regards instruction, can finally be used for this important purpose and be made fruitful.

But the question may be asked, How can this be done? In the carrying out of the scheme, especially as regards the relations of the psychiatric clinic to the existing insane asylums, of course we must have experience before certain uncertainties and doubts can be solved. The man competent to make these experiments will be one who appreciates the fact that in the presence of a new task he must search without bias and take hold of the right, unhampered by prevailing opinions; nay, when necessary he must go even so far as to sacrifice some of the most cherished prejudices. This is my own personal experience. It took me a long time before I obtained a clear idea of the methods by which the scope of the psychiatric instruction could be rendered most effective and before my ideas, gained from the views prevailing in the existing insane asylums, after a longer experience gave way gradually to other opinions. It is true that, inasmuch as few men in Germany have been in a position to follow the same method and to arrive at an independent standpoint, I do not expect to meet with a universal acceptance of my views, but at least I can ask for a calm test of them. A very little time will suffice by experience to prove their truth and to show that opposing methods are impractical. I shall limit myself to formulating a few conclusions, which are as follows:

(1) The psychiatric clinic can never flourish as a source of instruction to all, not even though the course should be made compulsory, when the attendance is rendered difficult for students by extraneous circumstances. Nay more, special facilities should be afforded to the student to avail himself of these advantages. Above all, since he must be spared loss of time, everything (hours and places) must be made as convenient for him as possible. For these reasons the whole scheme must inevitably suffer if the psychiatric clinic be situated at some distance from the city, or, in the case of a large town, in a part remote from the other clinics.

Nearness to the latter is an indispensable feature. A walk of a quarter of an hour supplies a hindrance which can mar everything. The best arrangement would be for the psychiatric clinic to adjoin the other places of instruction.

(2) The psychiatric clinic must contain an abundant material of acute cases. The future practitioner must, above all, be taught how to grasp the situation, diagnose and handle such patients when he is called to see them in private houses. Only in acute cases is it possible to observe the real course, the genuine progress or retrogression of the pathological process, the onset, the convalescence, the interesting clinical picture afforded by further symptoms connected with the cerebral disorder, the success or non-success of treatment.

(3) As is only natural in an institution containing many acute cases, the rotation of patients is relatively speedy. On this account a clinical asylum can be small and yet at the same time good. We need not have over 100 or at most 150 beds; nay, if the majority of the cases are acute, and careful measures are taken for the transference of unsuitable cases, we can do with from 60 to 80 beds. My own demonstrations are provided from an average number of 120, and with one year's admissions, which in 1863, for instance, included 430 so-called insane and 86 epileptics. I demonstrate during every half-year from 80 to 100 cases, among which instances of the most important diseases, such as paralysis, with a great variety of symptoms, and for the most part the rarer forms with many modifications, are represented. This suffices, when united with an appropriate course in psychiatry, to initiate the students into the first principles, at least in so far as university instruction can do this for any of the practical branches.

(4) It is not in the least to be feared that by this arrangement the chronic and incurable conditions, the countless residua of processes that have run their course, cannot be demonstrated to the student in sufficient numbers and with satisfactory precision. No matter what kind of organization be established, in any given asylum it is inevitable that there should at all times be found a fairly large number of such cases—always sufficient for teaching purposes. What we have to fear, indeed, is just the reverse, namely, that these residua will far outnumber the acute cases, and consequently we must take energetic measures to pro-

vide for the possibility of a steady passing on of such cases as soon as they have served their teaching purposes—just as would be done in any other clinic.

(5) No less than the requirements thus far mentioned do all the others connected with the clinical asylum coincide with those of the city asylum. The latter can be situated in the same grounds or quite close to the clinical hospital. It can even form a part—although a separate department—of it. From the general rules of the management and discipline it is easy to make the relatively insignificant modifications which the special objects of this department would call for. If the municipal asylum in a university city be provided with all the appliances and conveniences which are necessary to make it a scientific observatory, and if in addition a lecture room be supplied, then out of the municipal asylum a clinical asylum has been made.

On these lines and in no other way is it possible to provide in a really satisfactory manner for clinical instruction in psychiatry.

Even supposing that it were not feasible, on account of local conditions, for the university to obtain a small asylum with a majority of acute cases, but that it were possible or for special reasons a matter of great urgency that a home for the insane (*Pflegeanstalt*) should be established in the immediate neighborhood of the university, of course the material from such an institution would not be so well adapted for teaching purposes—but at any rate it would be better than nothing. But only as a second best alternative would one be justified in the idea of using large insane asylums for teaching purposes. Moreover, there would always remain the great objection that all such institutions, in order to be really good, must of necessity have a rural character, and would, therefore, be at some distance from any city, so that for this reason they would not meet the main requirement previously mentioned, namely, the close proximity to the other clinics. Nevertheless, some such imperfect arrangement is better than nothing. At any rate it gives the teacher of psychiatry a chance to pursue his specialty. Hence it follows that in a country that possesses only one university and only one asylum is needed, this should always be established quite close to the university and all ill-advised counsels to place it in the seclusion of the country should receive no attention. In the vicinity of our

small universities, as a rule all the conditions are, to say the least, sufficiently rural.

From the instances in which the clinical asylums and even the city asylums can conveniently form departments of larger hospitals, much light has been thrown upon the idea, so generally accepted in German psychiatric clinics of to-day, that only special and distinctive institutions are desirable or appropriate. This idea owed its existence mainly to the conception which held psychiatry to be, as it were, a close corporation, and from too wide a generalization of what holds good only for a portion of the patients. Any one who has once recognized the unity of so-called mental disorders and other cerebral and nervous diseases, can readily see every day that in the case of many patients it is merely an arbitrary decision whether we are to call them mentally or nervously disordered, and whether we are to assign them to the nervous or insane department. Hence one can readily see from what standpoint we must take up the question. Nevertheless, in this connection I may be allowed to say a few words about still another question. Would it not also be possible to properly care for the mentally disturbed in ordinary hospitals, not only for those merely temporarily afflicted and in urgent cases, but also for those who need prolonged treatment? For a certain class of so-called insane cases and for a certain class of hospitals this question can be answered most emphatically in the affirmative. Chronic, perfectly quiet patients, with a residuum of disease manifesting itself in feeble-mindedness and especially genuine idiocy; simple mental invalids suffering from paralysis, fits and so forth, and at the same time the more or less mentally confused and the larger majority of dull epileptics, etc., of course, can very well live in the large infirmaries together with bodily enfeebled individuals. But whether these mentally sick, languishing and crippled ones, these social and intellectual nullities, ought to be associated with those who are merely enfeebled in body, or whether a separate place should be assigned them will depend largely upon their number. No fundamental or important principle is involved. Certainly these insane and feeble-minded individuals in such large hospitals should not be relegated—as we so often find it to be the case—to the most remote corners of the building, and crowded in damp,

grim yards, upon whose walls the cats roam around, where no tree or flower delights the eye, and where a bit of blue sky can hardly be discerned between the gloomy roofs. No. They should receive the same simple, but no less good, treatment and care as other inmates of these hospitals. They should have plenty of fresh air and light and always constant good medical care and in accordance with the humane spirit of our time these unfortunates should fill the places in life that nature has decreed for them. Religious societies can join in the care of this class of patients to the best advantage. But, above all, science must take note of them and must not allow to be lost the priceless material for instruction and research which they offer. But in the case of the insane a long stay in general hospitals must be limited to this class. Hapless inhabitants would be those individuals there who, vigorous and strong in body, although insane or mentally defective to a slight degree, need work, especially work in the open air. These unfortunates often stay here for years idle, behind barred corridors, in cells; their unused bodily vigor expending itself in cries and tumult. They indeed find themselves in hell, and they shake to their foundations the order and harmony of such a house.

From what has been said, then, it is apparent that a large portion of the so-called insane, acute as well as grave chronic old cases, can be better cared for in departments which need not have the character or the arrangement found in modern insane asylums. But such a statement must not be taken to mean that the latter are not needed. There remains a large number of chronic<sup>\*</sup> patients or those presenting what from a medical standpoint may be regarded as disease remnants or residua, who vary frequently between better and worse. There are many of the so-called demented or feeble-minded, who suffer from frequently recurring periodic or circular disturbances, from "moral insanity," etc., who bodily are more or less vigorous individuals for whom a peculiar kind of care specially suited to their condition must be provided. And these conditions are attainable in the

<sup>\*</sup>Chronic does not necessarily mean wholly incurable. What may be termed "recovery" can be attained by many of these even after years. The benevolent influence of a country life for years is very valuable in this connection.

majority of our present insane asylums. Among these individuals are many who cannot stay at home with their own families—even if they have any—because on account of their weakened intellectual powers the ordinary conditions of everyday life, simple as it may be, are no longer supportable; who, because in their original surroundings they are subject to frequent attacks of excitement or confusion, would be misunderstood and not fairly dealt with, and on account of their pathological manifestations might be subjected to cruelty; and who at any rate would prove a more or less disturbing if not dangerous element to those that surround them. Many of these individuals are still perfectly capable of rendering their lives, in part at least, serviceable to others, more especially in utilizing their bodily strength in suitable production and at the same time of adding a certain amount of pleasure to their own existence. But all this can only come about provided that they are allowed to live under certain peculiar, simple conditions, suitable to their needs. Under such conditions we see a number of these individuals, who in their own homes would not only be absolutely incapable of work, but would also be insupportable to those around them, quiet, relatively contented workers, who for many years pass an existence satisfactory to themselves and others. Their intercurrent times of excitement of various forms become milder and rarer under good treatment; their bodily health improves; mental needs become not altogether foreign to them; in their manner of speech and behavior they still retain some form of healthy life. In a word—but only under especially arranged conditions—the life of a human being is still more or less possible, and the man who cares for them must seek to preserve for each one of them, as far as possible, this human life, unless indeed the name humanity is on his lips only and not in his heart.

The individual—even the so-called insane individual—is no living machine whose functions are ended with the satisfaction of hunger, thirst and with the provision of purely mechanical work. He has emotions, he has interests, he has a heart. It is true that in many of the mentally diseased the soul is sunken in darkness, the intellectual nature is extinguished, the will is broken; but in others these emotions are still present, although too often they are like sparks glimmering under the ashes. But

sparks though they be, they are precious. The mental forces of human nature, the healthy emotions in these poor creatures must be fostered and cared for. They must be recognized at their true worth and must be exercised. The more and the better any system of care brings about this in the afflicted the better it is. The less it accomplishes on these lines the worse it is. I am well aware that this remark applies not only to the method, but even more so to the conduct and carrying out of it in individual cases. A method of care in itself bad can nevertheless by means of the spirit of love, good judgment and kindness on the part of those persons who carry it out, especially when they combine these qualities with the scientific spirit and with the honest instinct which searches after truth, can right well fulfil its object, whereas on the other hand a method devised according to the most humane intentions in other hands can be productive of misery to those which it would care for. But after all this correction of bad conditions by good individuals has its limits; those who carry on the work change and in all our arrangements we must seek to establish as far as possible an organization which shall be the best independently of the personal factor as regards the difference in individuals.

For the insane of whom we are now speaking, we have to arrange for a long stay, even for many years, often for half a lifetime. For this whole period we must guarantee to them, as I just now said, the utmost possible utilization of their lives, for themselves, for others and for society which cares for them; their bodily health must be preserved; every good instinct, every good emotion must be encouraged and a moderate degree of happiness in life must be assured to them. Above all things and under all circumstances, we must see to it that we protect them from sinking still lower.

These important ends the newer psychiatry has sought to attain by the barrack method—although in employing the term I have no thought of a secondary bad sense. In huge places or convent-like buildings, which, as a rule, are a source of the greatest admiration to the ordinary public—although to-day it would be an easy task for any good builder to erect one after the excellent models to be found in England and Holland—are to be found

several hundreds—in England here and there over a thousand—of these patients in a single institution. With the greatest and most thoughtful care, I might say with scrupulosity in the erection of these institutions, provision has been made for fresh air, light, nursing, employment and distraction of the patients. As a rule, the service is well regulated and there is apparent an energetic attempt on the part of the physicians to bring about still further improvements in the details of the arrangements.

The foolish excesses of luxury in some places and, on the other hand, the sad contrast which can sometimes be found between gorgeous halls and straw beds on which the patients sleep, between extensive parks and a starvation diet, must not be set down to the fault of the system itself. With pride we can point to these houses as beauteous monuments to the humanity of our century.

But from an economical standpoint there is another side to the question. In the realm of public beneficence the superabundance of one must be taken from another who is also needy. What we have to accomplish is to care for as many as possible, as well as possible, but as cheaply as possible. Whether our present way of doing things has satisfied these demands we may well doubt. It is calculated that in the new buildings, such as are now demanded almost universally by the psychiatrists of to-day, it costs about \$750 for the provision of a place for a single patient. Often indeed this sum is exceeded. A new German institution destined for four hundred patients has cost \$450,000 to erect. Foreign countries have not remained behind. The three new institutions in Paris—Ste. Anne, Ville-Evrard and Vaucluse, accommodating eighteen hundred patients—will cost twenty-two millions of francs, about \$2100 per capita; and these examples might be multiplied many times. Fortunately, this is not the universal rate, but if one considers that in the last twenty years places for about four thousand patients have been provided in German insane asylums and that in the whole of Europe probably nearly three hundred thousand insane patients are in institutions for whom finally good buildings must be provided; and when one considers that to the cost of the buildings the expense of keeping them up and the expense of caring for needy patients must be added, we shall certainly admit the fact that the expendi-

ture is out of all relation with that obtaining in other fields of public charity.

In order to feel sure that the money is utilized in the best possible way I should have to reduce the expenditure. But my own opinion is, that for many of the individuals who have been treated by this lavish method such an one is not necessary, nay more, that often it is not even advantageous. Who would wish to belittle the excellent purposes of the men who established these institutions and who have hitherto advocated this idea? I myself until a few years ago could imagine nothing different or better, and I still believe that the complete carrying out of the idea was a necessary intermediate step to further advancements. But at the same time I believe that this idea of applying exclusively the barrack system of care to the chronic insane, who are still capable of leading a human existence, is now a thing of the past and has no further future, and that for a considerable portion of the patients, who up to the present time have lived under this system, something better can take its place.

It is a misfortune that in the life of the insane the good must suffer with the bad. Because for a certain number of the chronic patients, of whom we are now speaking, a life resembling that of the sane man and which connects him with the sane man, is no longer possible, we take away these privileges from no insignificant number who would still be able to enjoy them. Moreover, the idea that each category must be considered separately and in accordance with its nature, in many places has not yet been appreciated. We establish rules for these bad ones which are supposed to hold good for the "insane," and we make our arrangements to suit these rules. Because a certain small proportion of insane patients are a source of danger to those who surround them, a large number are treated as if they were so. Because a certain number are no longer capable of enjoying any freedom, we make this deprivation of freedom the rule. I do not mean that the mentally diseased should be granted the same liberty as the sane, but I do say that they should be given that amount of freedom that is consistent with the safety and welfare of the public and that is consonant with the condition of the patient. I mean that to very many of these afflicted ones much more of a wisely con-

trolled freedom can be given—and therefore should be given—than we in Germany at the present day are willing to allow. This is our bounden duty not only because we are doing an injustice in restricting the freedom of any individual more than is absolutely necessary, but even more because the healthy mental faculties, whose conservation and utilization for the establishment of a really human life are necessary in dealing with the chronic cases, as a result of a prolonged mechanical mode of life and in a constant association of the patient with others, are blunted and destroyed. Of this fact we have hundreds of examples among patients in infirmaries, because these forces can only be nurtured in the presence of a certain amount of freedom. To my worthy colleague Roller we owe the dictum, expressed in 1861 on the last page of my book, that many of the insane could be allowed much more freedom than is generally considered advisable. Since that time I have become convinced of the truth of this dictum from personal observations in many places and I am heartily in accord with this view. But, provided that such patients can support it, it is our bounden duty to give it to them.

But this is by no means all. So far as regards a number of these individuals we cannot save them from confinement to a definite locality, or from a continuous existence among fellow-sufferers; nevertheless, we must recognize the fact that from a steady close supervision and a strictly mechanical mode of life they can derive much benefit. These patients are all dangerous, turbulent, disturbing elements, no longer to be tolerated in social life and such of them whose proper place is not in hospitals at any rate need to be confined in institutions. As to which of the so-called insane are dangerous, much has already been said. My firm opinion based upon experience has convinced me that the most important factor consists in the surroundings among which the patient is placed. Provided that these are suited to the particular case, provided that the treatment is good and appropriate, the vast majority of the patients are not dangerous. On the other hand, in the presence of unsuitable surroundings, external sources of irritation and bad treatment, almost all can become so. This much is certain, that even twenty years ago the freedom now given to a number of patients in the agricultural colonies with the greatest benefit to them was considered in the

highest degree dangerous. Thus in Gheel, with a free insane population of over 1000 souls, years can pass without any dangerous manifestations on their part, or at least not oftener than might occur among the same number of sane people.<sup>6</sup>

Moreover, it is certain that occasional dangerous manifestations, just like other exceptional accidents in the outside world, cannot in any way be effectually guarded against, despite the most rigid precautions, even although all the patients should be kept in prison or in chains. On the other hand, it is also certain that there are patients who at times, no matter under what treatment they may be or what may be the external surroundings, can become dangerous to the highest degree. This applies more especially to certain epileptics with hallucinations and individuals with rare forms of moral insanity. For such cases when there exists a reasonable probability that this danger is to be feared from any given individual, prudence of course would indicate the adoption of such measures as would be appropriate if such a danger was actually present.

Briefly, then, as belonging to the class of individuals, who on these general grounds require permanent safekeeping in a "closed" asylum are to be reckoned: (a) Those who have already committed dangerous acts,<sup>7</sup> or who on account of their threatening language or peculiar conduct really justify the expectation of acts of violence. (b) Individuals who have frequently attempted suicide, or who have morbid inclination to alcoholic or sexual excesses or frequent thefts. (c) Individuals suffering from fixed delusions so that they utterly fail to appreciate the real conditions existing in the world around them. (d) Individuals who use any freedom granted them to run away, to

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become vagabonds, to render themselves unprofitable citizens in every way, those who cause disturbances and are always coming into collision with the public authorities. (e) Individuals who are subject to fits of intense depression or a restless, excited condition or outbreaks of uncontrollable anger. Among these last are especially to be mentioned a relatively large number of epileptics even of the better class, who so often exhibit such passionate outbursts and who besides, on account of accompanying psychical anomalies, already of a severe grade, have become intolerable in general society.

But the "closed" institution has, moreover, to keep for a greater or less length of time chronic patients who on account of bodily affections are in need of a prolonged medical treatment, e. g., with hydrotherapy or the like, or who are bedridden and demand especial care without being fit subjects for ordinary hospitals or infirmaries. Thus one can readily see that there is no lack of patients for whom a stay in a closed asylum must be recognized as not only salutary but necessary; and that with sensible men there is no talk of doing away with closed insane asylums; but on the contrary, that such institutions, where they do not exist, are absolutely necessary and should be provided at once.

But there is another kind of chronic insane—those who are capable of that larger share of freedom mentioned above, and must have this allotted to them. I mean the better ones who should not suffer with the worst types. In every asylum—if we only look around in an unprejudiced psychiatric spirit—we shall find quite a number of individuals who can never return home to their old conditions, in whose cases, at any rate, the disease has often destroyed their most cherished interests in life; who in any case could never carry on or support the life in the outer world of men of sound mind, but who, nevertheless, do not need a lifelong absolute seclusion. Such persons are found in the asylum, although everybody, probably best of all the director, feels that they really need not be in such a place, that they are too good to live among idiots, maniacs, paranoiacs and epileptics. They have been there for many years solely because no one knows what else to do with them. They are harmless, quiet, capable of work, have a certain degree of sense, are useful

under simple routine conditions, composed and peaceable—occasionally, it may be, noisy but quite inoffensive. But in the monotony and uniformity of the asylum their intellectual faculties, such as they are, die inch by inch and become duller and duller. This is the fate of these inhabitants who have accepted the seclusion of the asylum as a necessity. For this unfortunate class of patients public charity could do much. It must seek measures to provide for them the conditions of which they stand in need. It must bring them out of the closed prison into the freer forms of care—a general outline of which will be given later on. As a result of such changes not only will these unhappy individuals themselves be rescued from the misfortune and monstrosity of this continuous deprivation of freedom, but at the same time also the closed asylums will be relieved from the uncomfortable crowding with individuals, many of whom do not need their help. In this connection, therefore, important economical questions also call for proper consideration. For instance, a shoemaker's wife has become feeble-minded; she declares herself a princess, rushes to the palace, writes senseless letters and has all the street urchins shouting after her—in a word, she has become impossible for ordinary life. At an expense of some \$2000 we establish for her a place in a palace with lofty, well ventilated halls, where everything is done by the clock and where she feels very miserable. On the other hand, in a small room in a village, living with people, plain but her own equals, she could have found all she needed; she could have done a little housework, such as she had been accustomed to do all her life long; she could have taken care of children, helped her neighbor and in fact have found a relatively happy life in freedom and appropriate work. This example holds good for countless others of the more or less feeble-minded insane, periodic maniacs and others.

In my opinion the "open-door care" which such individuals need, must always be closely associated with a "closed" asylum. Thus all the necessary provision for a long or permanent sheltering of these chronic sufferers is supplied by a combination consisting of (1) a closed asylum, and (2) the establishment of one or more annexes in which the open-door method prevails—the two systems forming together a harmonious whole. Such an arrangement offers a plan for the disposal of chronic patients

which meets the development required by the wants of to-day. Thus the asylum must in no way be done away or made of secondary importance; on the contrary, it must be still further developed by the addition of new and most important departments, enlarging and enhancing its peculiar work.

These asylums are in every way different from the institutions intended for acute conditions, the clinical and city asylums. They should be in the country and should have a really rural character. All the arguments that certain alienists have brought forward against the placing of institutions near large cities, hold good only for this class of asylums. Nevertheless, isolation in the country is not absolutely necessary. If, as exceptionally might happen, a few miles from a large city a suitable site could be obtained, there could be no objection to it provided only that the patients could be afforded a country life. For this reason I would term these institutions "rural" asylums. Agricultural pursuits should form an important part of their life and existence.

Their extent must, therefore, be large, 60 to 120 acres, according to the number of patients. A larger expansion will be profitable only in exceptional cases as, for instance, at Clermont. Again, the number of patients must be considerable, otherwise one will not be able to find sufficient workers. The economical administration is much easier where the population is large; the question of medical care offers but little difficulty among a class of patients, many of whom for years need make no demands upon the time of the physician. Four hundred, five hundred, under exceptional circumstances even six hundred patients, can be received. Numbers which I have not hesitated to condemn utterly for the strictly "closed" asylums, by a wider development of the open-door system can be received here with profit to themselves and others. Both sexes should be together in one institution, just as they are in any house in the outside world. Asylums are no monasteries or nunneries, and a proper apportionment of the various duties is more readily arrived at when both sexes are represented.

All the arrangements must be suited to a long stay of the patients—for years or tens of years. Well organized and diversified forms of work furnish one of the fundamentals for everything beyond. Idleness for still vigorous insane people, just as

for the sane, is the most destructive thing that can exist as regards the intellectual faculties. For farm and garden work, for workshops for a proper distribution of the various duties for all the seasons of the year and for all the various kinds of inhabitants provision must be made. All must work—invalids no longer capable of doing any part belong not to an institution of this kind, but to an infirmary. Their work must be made to supply a certain proportion of the expenses. Any inhabitant of the institution who becomes absolutely demented, paralyzed or absolutely incurable and unfit for work must be at once transferred to the infirmary whenever this can be done without cruelty.

But this does not mean that we are to establish a work-house; even the closed portion of the asylum should never be a prison. The institution must also offer something which shall provide a partial life to those to whom a complete life is no longer possible and to whom the insane asylum has become a second world. On this account, for these asylums, a beautiful or at least an agreeable situation must be provided and the benefits of a shady park and the provision of all the various but not too costly devices for the distraction and amusement of the patients must not be forgotten. Above all things—and this point can hardly be emphasized too much—in the closed portion of the asylum all the arrangements must have a cheerful, homelike character—everything must be in good taste although not luxurious. In the best part of themselves, in their esthetic and moral sense, the patients will be elevated, if life is made no mere existence and not reduced to a matter of absolute necessity—if it be presented to them not in its sad and unlovely earnestness, but in a kindly light and simple garb. At a small expense, if this end be kept in view, an incredible amount can be done for the welfare and comfort of these unfortunates. In this connection Germany has much to learn from English institutions where this fundamental principle has long been officially recognized.\* Moreover, as regards other internal arrangements of the "closed" portion in general, and more particularly their practical comfort, but not in their luxury, we might imitate the English models. Maniacal depart-

\* See the excellent observations on this point in the Comm. of Lunacy Reports for England, xvii, 1862, p. 41.

ments—long rows of cells and the like—are no longer found. On the other hand, it is well that a part of the house should consist of small private rooms on the ground floor, and separate sleeping rooms are very necessary. Fine facades, halls, corridors and the like, in the scheme of these institutions, are simply foolishness. The barrack style must be limited to the main building. If the amount of land permits, a not too regular row of cottage buildings is much more desirable.

Another great difference between the rural and the city and clinical asylums might at first appear paradoxical. Admission into the two last must always be made as easy as possible, whereas into the former it must be rendered difficult. Any individual that is not suited to this little world must without any hesitation be assigned to other places. Above all, these persons who need only care in a hospital or who can very well be looked after at home must never be thrust upon the rural asylums.\*

On account of the numbers of those who apply for admission to these asylums the tendency to overcrowding is naturally very great and unless the utmost strictness is employed such an institution would be utterly ruined and a good part of those who really need such a place would be shut out.

For the second principal department of the asylum, for the open-door form of treatment, we possess very much fewer patterns that admit of complete imitation than for the closed part. And just because up to the present time no cut and dried method has been established in this respect, to many the matter seems impossible to be carried out. Objectors speak of innovations which cannot be controlled, and of dangerous experiments made. As a matter of fact, we must go and study the matter on the spot. So far as regards the man who wishes to form a judgment about such practical matters from easy-chair studies, his voice, no matter how loud it is raised, is not worth listening to.

Two main kinds of the open-door care can be carried out in the

\*These people, for example, or slightly demented individuals who for eleven months in the year are perfectly quiet and capable of being at large, but who are excited for about one month, during the latter period belong to the clinical or city asylum and for the rest of the time should be kept at home.

present and each of these is capable of manifold modifications. They are not absolute alternatives of which we must choose one or the other, but run, so to speak, parallel to one another and under certain circumstances can with great ease and advantage be combined.

(1) The *agricultural colony* offers to a certain class of patients in itself a totally different life from that which belongs to the closed part of the institution. By it a much wider part of the world is laid open to the inhabitants of the former, a freer existence and a more lively exercise of the working powers. In the Fitz-James farm, founded in 1847, in the great economic results, the good order, the activity and in the well-being that reign there, we have, up to the present time, the most splendid example and future picture of this form of care. In fact all authorities to-day are united in recognizing the value of this institution. The idea also has had so wide an influence that in many places the carrying out of it is imminent. Thus, for instance, the communal authorities of Lüttich, after four years of indecision as to the best system to be chosen, last year decided to found a large institution on the lines of the agricultural colony (farm asylum).

As to the question whether the farm should be closely connected with the closed institution or should be placed at some distance from it, in general I am decidedly in favor of the latter, but at the same time I admit that local conditions may at times justify the former arrangement. In this connection the following factors are of importance :

The agricultural colony—as has been said—is only suitable for large asylums. A successful carrying out of the scheme is only possible on a somewhat large scale. The work of the insane individual is only about a fifth part that of the average healthy man; in this connection, therefore, 100 patients would equal about 20 normal energetic men. Even when the strictest rules for admission obtain for the whole institution, so that any one who is bodily incapable is debarred entrance, there will always be found, on an average, only about one out of five capable of field work. Hence it follows that to obtain the work of 20 ordinary active laborers the whole institution must be able to accommodate about 500 inhabitants. Despite the objection of theorists, the Fitz-James has abundantly proved that individuals, who had previously

been unaccustomed to rural occupations, take to them with the greatest enthusiasm and carry them on with the most satisfactory results. But the so-called educated class—the men who have read about everything but have never learned to make any practical use of their forces—are almost totally shut out from the atmosphere of well-being, work, sociability and freedom which the agricultural colony offers to its inhabitants and which is so wholesome for them. Hence, when there is question of erecting a rural institution for a province containing one or several large cities, it is advisable to make sure whether or not the many cities offer a good element for an agricultural colony. Nevertheless, in these cases also, other circumstances being favorable, we shall often be justified in making at least a small beginning.

But, as Mundy has correctly remarked, even in the agricultural colonies the insane individual lives all the time in the midst of other insane people and attendants in an artificial freedom, although for many, indeed, this may be too great, and in an atmosphere which limits his independence and intellectual elevation. From its very nature the colony is adapted only to the robust insane and the benefits of this free open-door form of care cannot be taken advantage of by many patients who in other respects would need it. Generally speaking, then, there are to be found influences still more beneficial than those of the colonies. These are to be found:

(2) In the *family care*, which for a certain proportion of the insane is the right and only appropriate method. It offers, what the finest and best managed institution can never give, a full life among the sane, the return from an artificial or monotonous existence to a natural social atmosphere—the benefits of family life. Quiet, absolutely inoffensive patients, still receptive to the influences which belong to this kind of existence, who are not altogether estranged from life, and who are still capable of benefiting by the majority of the healthy forms, on the whole, females rather than males are admirably adapted to this kind of open-door care and stand in urgent need of it. With such patients, more particularly, the family life can be begun. Gradually and almost imperceptibly it will take in all those who are not included in the categories of the permanent inhabitants of the closed institutions.

The family system can be realized under two kinds of modifications: (a) In the case of a rural institution in the neighborhood of small villages or towns a certain number of patients can be entrusted as boarders to honest respectable farmers, artisans and the like—one or at most two patients to each house. The whole care, employment, nutrition and accommodation must be under the supervision of, but not actually provided for by, the institution. An inspector or assistant physician every day, or according to circumstances every second day, should visit all these houses. At first the patients, for half a day, twice every week, can come into the institution, until caretaker and patient have become well acquainted with one another. The patients should share in the work, meals and in fact in the whole family life of the caretakers. The latter, therefore, should be people of about the same station in life, of the same education and calling; the former tailor should be assigned, when possible, to a tailor, the farmer to a farmer. Of course the assignment of the individual patients to appropriate families is part of the duty of the institution and should never be left to the relatives of the patient. The cost of board will be arranged with the family, some slight allowance being made for the work done by the patient. Further details need not be given here.

Is this method practicable? In Gheel, with over a thousand patients, in Scotland with several hundred and in the Devonshire County Asylum<sup>10</sup> it is already an accomplished fact, and it must inevitably be carried out in other places also. But it might be asked, How about the care of the patients? Can it ever be so good anywhere as in the closed institution with its airy sleeping apartments, its garden, its water supply, its three meals daily, at which is served excellent food prepared by means of the most modern and best kitchen arrangements? To this question there

<sup>10</sup> Here I first saw the method. For the rest of my life I shall remember with pleasure the evening on which in the presence of these small beginnings but also in the face of incontrovertible facts I laid aside my own theoretical doubts. It was not only possible—it actually existed—the errors of years were destroyed in a single hour, and although the idea itself should be given up again and denied by those who had themselves made it an accomplished fact, it has worked and will work for all times.

is but one answer. Ask the patients who are now under family care, but who were formerly in excellent closed asylums, whether they would like to go back. The well-being of man, i. e., the real personal recognition that it is well with him, depends but very little upon such things, but is largely a matter of feeling. He that is not fitted for the closed asylum and for whom it is not a matter of necessity, looks upon such a place as a prison-house, for the flesh-pots of which he never pines. And he is right.

(3) On the other hand, in places where, as regards the second main requirement of the asylum, conditions suitable for the introduction of the patients into families do not yet exist, these should be created. The idea is simply that one portion of the asylum, instead of forming a part of the central building, should from the very beginning be built apart and separate from it. In the neighborhood of the central building—ten minutes or half-an-hour's walk from it—a number of cottages should be built, not arranged stiffly in a row or built every one exactly according to the same pattern, but scattered about so far as the land at our disposal will allow. Each house should, when possible, have its own garden, even though it be small. At first we might begin with a few—from 6 to 10—such detached cottages, which can be inhabited by the families of attendants. Later—and this result is certain if the system is properly managed and barring exceptional bad luck—to these original attendants' families could be added others especially those of artisans; more of such dwellings could be created and gradually a colony would be formed. To each family, then, two or at most four patients, belonging to the oft-mentioned category, would be assigned and the same regulations would apply as in the case of the first method of family life. Here also there would be daily visits of the patients by the hospital physician, and continuous close relations between the colony and the central closed portion of the asylum. Each new arrival would have at first to remain for a certain period of observation in the main asylum, and as soon as an acute condition or a period of excitement befell a patient in the colony, he would at once be sent back temporarily to the central building. The economic administration need not be gone into here in detail; it mainly depends upon the principle that the families that live in the cottages (the caretakers) should occupy the position of attendants of the asy-

lum, that the work of the patients is given over to them and their earnings are taken into consideration in the agreement<sup>11</sup> and that according to the value of their earnings the payment made for board also varies. Upon this fundamental principle everything else is built up.

Whereas in the case of the first modification of the family form of care in a pre-existing village the establishment of buildings for this whole part of the asylum costs nothing; with the second plan, although they must be provided, they would be much cheaper than those of the closed asylums. In the provision of proper but cheap dwellings for the poorer classes (workmen's houses) modern advances have done much and many of our ideas on the subject are liable to change. The greatest names of the century have taken part in such efforts and a still more rapid and wider progress is to be confidently expected in this connection.

The workman's house with four rooms, after the model of the *cité ouvrière* of Mulhausen, which can accommodate two patients, costs at most about \$600 and the expense—supposing four patients be reckoned to a larger dwelling of a similar kind—would not be more than \$250 a head. This is a great difference as against \$750 a head in our new buildings of to-day and a difference which first receives its true significance when we recognize the fact that with less outlay the class of insane in question receives better care.

The method which I have proposed last is not new. The main idea has been suggested and recommended by Mundy. The plans have been worked out by him in detail and have also been published. Never would this scheme have become possible had it not been for the extensive experience afforded us by Gheel. In this unique village we have a picture that we should not seek to copy mechanically, but which, to every man who has at heart not alone the psychical but also the moral welfare of the insane, shows the way in which he should go. But my plan differs in important respects from that afforded by Gheel—in one way perhaps to its disadvantage—but a complete copy and reproduction of Gheel in an-

<sup>11</sup> In Gheel the same main principle holds good, but the valuation is a general one. On the smaller scale, with which we are now more directly concerned, an accurate reckoning is possible.

other place is simply impossible and other necessities call for satisfaction. According to my plan the majority of acute cases are absorbed by the clinical and city asylums, while the mental invalids and cripples belong to the infirmaries. To the rural asylums are left the chronic cases and able-bodied individuals, but among these are many who need a closed institution and who are excluded by the regulations of Gheel; I mean the suicidal, the homicidal, the erotic insane, etc. The closed asylum in my scheme must ever remain the center of the whole. The colony for family care, which I am convinced is a no less necessary second part of the asylum must, as things are at present, develop at first gradually near the center which in the beginning must still preponderate, until through its benefits the family portion comes to be recognized as having an equal birthright. Still later in all probability in most places it will be developed into the more important and more useful part of the whole. In my plan it will hardly be possible for the closed center to stand in the relation of a simple infirmary to the colony, as is the case in Gheel—a state of things which is so eminently suited to the conditions there—for whereas the infirmary at Gheel simply serves for the strictly temporary reception of certain patients,<sup>19</sup> our central closed portion must and will always hold a large number of patients, who will have to stay there for a long time and some of them for all their lives.

Naturally there is nothing to prevent several or indeed all the various modifications of the open-door care from being connected with the closed asylum. Only let us have no pedantry and no so-called systems which would make all shoes by one last. In an asylum of any considerable size the healthy and otherwise suitable patients can be kept on the farm; another class be lodged in pre-

<sup>19</sup> According to Article I of its regulations I would here insist upon the wholly erroneous idea that by the erection of an infirmary, Gheel has attached itself somewhat to the system of closed institutions and has given up its peculiar character. In the fall of 1866 out of about 1000 patients at Gheel I found a few more than 30 in the infirmary. The regulations, the practice of the worthy director, Dr. Bulckens, and the ideas of the permanent advisory commission of Belgian asylums, Ducpétiaux, Vermeulen and Oudart, are all opposed to this false interpretation (see *Neuvième Rapport de la Commission permanente*, etc., Bruxelles, 1866, pp. 10 et seq.).

existing cottages, and, when there is not room enough for the provision of family care, at least a number of cottages for attendants' families can be erected. To get away from the system of the mechanical herding together of patients and arriving at a decentralization which will afford to the patient capable of it more freedom, a greater retention of his individuality and as far as possible the benefits of a life among healthy men—this aim can be reached by different roads and no one of these need necessarily exclude the other. A moment's consideration shows that the agricultural colony—if one wishes to give this the preference—after all is only suitable for a strictly limited number of individuals, but because it is not adapted for others who, nevertheless, need the open-door treatment, shall not it be afforded to the former? One should neither affirm that the freedom of the colony for the insane should be the rule and the closed institution only the exception, nor exactly the contrary proposition. It is far better to give to each individual just the measure of freedom which can be allowed to him. As to this exact modicum further experience is still needed. The other great reform in practical psychiatry, which we owe to the efforts of the immortal Conolly, has already caused to disappear the greatest part of violence and so-called mania from our asylums and has made us acquainted with a totally different lunatic—as a result of much milder treatment and one that never takes from him the use of his limbs—a very different person from the one we used to see in the mad cells and the strait-jacket. And perchance the insane individual under the open-door treatment will again appear to us as another and a better individual than the inhabitants of our asylums of to-day. If that be the case, the number of the free colonists will more and more surpass that of the inhabitants of the closed asylums. But this is a question of the future, and in its solution we can with contentment leave at least a part for others to do, provided that we ourselves in the present perform our full duty.

I have often been asked, What will become of our present asylums after the introduction of the freer forms of care? I know of many of my colleagues who would join in the movement of reforming institution life were it not for the fact that only just lately huge, expensive institutions had been built. And yet it is very evident that we shall always need closed asylums and that

a large proportion of the existing institutions, in so far indeed as they have the characteristics of a rural asylum, can be utilized. But instead of building new wings and thus increasing the crowding together, a second portion for a more open-door method of treatment, can and should be added either in the immediate neighborhood or at some distance off. Where this is absolutely impossible, let the closed asylum go on with the work, but let its admissions be more and more limited to patients who are really in need of it, and let it ever more and more introduce within its walls at least the spirit of the freer forms of care. In many such institutions this is already being done.

In not a few places, however, we have a clear field. In many districts and provinces of Germany earnest thought has been devoted to the erection of new institutions. Quite a number of the German universities are looking anxiously for the provision of thorough psychiatric instruction. It is unfortunate that in so many places the care of the insane is still so neglected, but nevertheless it would seem as though a certain instinct had often suggested to the leaders of the movement that the organizations established in the last thirty years and considered then almost universally as the acme of perfection were not to stand as the final result which science and practical humanity could hope to realize in this field. The very retardation of the movement—no matter what may have been the cause—can now be used advantageously in attaining our objects.

No doubt we should regard as good and well meaning the opinions of that numerous class of people who think that our whole duty can be accomplished by multiplying as many times as possible the insane asylums according to existing models. Nevertheless, experience ought to teach them that they are standing before the Danaids' jar and that a procedure which would ever place new asylums next to those that have been over-filled almost as soon as built—in other words asylums that have become bad—must find a limit on economic, therapeutic and social grounds.

The new need for clinical instruction demands clinical asylums. For the old evils caused by the ever-increasing demands for the care of the insane help is to be sought in the establishment of the open-door forms, which are capable of unlimited expansion at very much less cost. Indeed sometimes the system, economic-

ally, is so advantageous that by careful management in all probability it can become nearly self-supporting. But this matter cannot be put off into the distant future and it would be unpardonable in the face of the over-crowding of the central asylums—or in other words in the face of a condition in which all the aims of the institution and all the welfare of the patients are severely hampered—to be willing to wait until one can establish a method of care that would exactly apply to a whole class of patients. No! in the first plan of every institution this method must be considered as a necessary, important and absolutely justifiable part.

Go to Clermont, go above all to Gheel. This is what I would say to the doubters, the uncertain and the weak-kneed brethren. It is a mark of a small intellect to see everywhere only the difficulties and with an ignorance, that would simply shrug its shoulders, we can no longer be forbearing. See and compare. Do not think that everything can be made better in a moment, nor be willing to make everything after the pattern of what you yourselves see. Let your spirit become fruitful from what you see and take from each place what is best. For by rightly using what we have at hand and what is given to it the talent for organization may set itself to the great task; that talent that many a time up to the present has exhausted itself on the construction of the best cells and closets and things which can be made in any of a dozen ways without exerting any influence whatever upon the welfare of the patient.



## HYDROCEPHALUS INTERNUS IN THE ADULT.

By HENRY J. BERKLEY, M. D.,

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A number of years before Quincke published his monograph on Meningitis Serosa Ventricularum, I met with a middle-aged man in the Bay View Hospital, whose malady commenced with continued headache, stiffness of the neck musculature, hyperesthesiae and vomiting; symptoms which were slowly followed by paresis of the abducens and later by epileptiform convulsions. Then came progressive mental apathy, slowness of the pulse, wide dilatation of the pupils with tardy response to stimuli and eventually choked disks. After a time paralysis took the place of paresis, which extended to all four extremities, and was succeeded by contractures, until the man finally became completely bedridden, demented and blind. At first it seemed probable that within the cranial cavity was a slowly growing tumor so situated as to press upon the roots of the abducens nerves and impinge on the region of the motor and sensory paths as well as to increase the general intracranial pressure, but the man instead of dying lived for over two years, until finally the pneumococcus organism came to his relief.

The autopsy showed no local growth but an enormous dilatation of the lateral and third ventricles (the fluid contained being of a limpid straw color without lymph flakes), the downward pressure from the region of the distended hypophysis having occasioned the majority of the striking symptoms. In this particular instance there was no evidence of congenital malformation of the brain, no roughening of the ventricular lining, no evidence of an acute or recent process of any kind affecting the choroid plexuses to induce the diseased condition, nor was any lesion of the sinuses or larger veins observable.

Since the autopsy on this case some four others have come under my observation, but the majority of them were of a more acute

type, and closely corresponded to the description given by Quincke of his acute form of meningitis serosa.

Within the past year a new case came to my notice in the person of an epileptic woman who had been in the insane department of Bay View for many years. This case was so different in type from those preceding it, and from those described by Oppenheim, Benninghaus, Bresler, Kupferberg and others that a description of it seems not inappropriate. It differs from the others in the circumstance that there were no eye symptoms, either pupillary or retinal, as well as in the absence of paralytic symptoms of any kind, but it has this in common with the more frequent type, that it was attended by a progressive and fairly rapid mental weakening proceeding to a profound dementia, with progressive loss of bodily power, attacks of unconsciousness differing from the previous epileptiform convulsions by the fact that they were unattended by muscular cramps and that they were of hours' and not minutes' duration. Each of these prolonged seizures left the woman more and more helpless until for a short time before her death she was bedridden.

*History.*—Y. D., German, admitted to Bay View for epilepsy in 1875, aged 18 years, died February 10, 1901.

There is no record before 1892 of the patient beyond the date of admission and diagnosis, when she was placed upon the strontium bromide treatment, was carefully observed and a record made of the frequency of the attacks, her mental state, and general symptoms. The woman was of fair physique, five feet high and well nourished. There were no physical deformities of any interest. Evidences of local muscular weakness or atrophies of any of the muscles of the extremities or trunk were also lacking. The ocular reflexes and muscles of the orbit were perfect in their action. The fundus of each eye was normal.

The patient was mentally of low grade, had not been taught to read or write, but possessed considerable linguistic ability, speaking English and German fluently, though the range of her vocabulary was limited.

The epileptic seizures occurred at frequent intervals, sometimes several during the day and were of the classical type accompanied by entire loss of consciousness.

Her temperament was a fiery one, and for several years an

opportunity to come to blows with a fellow patient was always improved. She was cleanly and ate decently.

Under the strontium bromide treatment the patient for a time improved considerably, the attacks lessened in frequency and severity, averaging less than one a week, and she became brighter and more tractable. This improved state did not last long, and the severity and frequency of the seizures returned.

In 1895 it was noticed that D. was becoming less quarrelsome and more tractable. In this condition she remained not differing from the ordinary epileptic until 1900.

During 1900 her mental failure was rapid and progressive. Attacks differing from the previous epileptic seizures now began. These occurred about once a month between the epileptic spasms and were unaccompanied by muscular cramps. Without previous warning the patient would become comatose and so remain for from 12 to 15 hours. Each attack left her more and more helpless until in the last few months of life she was bedridden and badly demented, though to the last able to answer a simple question with a "yes" or "no," though very slowly and with great apparent effort.

There was never any indication of paralysis of any of the several muscular groups inclusive of the ocular muscles. The ophthalmoscopic examination was negative.

Death took place after an attack of pleurisy followed by passive congestion of the lungs.

*Autopsy Abstract.*—Section 18 hours after death. Body of a white woman fairly well developed. Rigor mortis present. No glandular enlargements. Abdominal cavity. Peritoneum smooth. Liver, gall-bladder, spleen, intestines, normal.

Kidneys, cortex 4 mm. Weight, left, 100 grams, right, 110 grams. Bladder normal. Generative organs senile and atrophied.

*Thoracic Cavity.*—Left pleura normal, right bound down by adhesions. Pericardium smooth. Epicardium smooth. Myocardium moderately firm. Valves natural. Passive congestion of the bases of both lungs.

*Cranial Cavity.*—Skull and dura normal. Brain weight with soft membranes, but after some fluid had escaped from the torn hypophysis, 1370 grams. The hypophyseal region much tumefied.

Both hemispheres were equal in size, the convolutions simple.

*Cerebellum.*—Both lobes were equal in size, the folia normal in appearance. The pons and medulla were rather small. The fourth ventricle was not dilated. The iter is patulous and not dilated. The medulla is of normal aspect.

*Cerebral Convulsions.—Right side.* Anterior lobe: The three frontal gyri are broad and have few folds connecting them in their anterior portions. The first frontal is composed of two separate gyri divided into two almost equal portions by a longitudinal sulcus, and there is no fusion until the frontal pole is reached. The second frontal is narrower than the broad first, nevertheless it measures in its middle portion 3 cm. and is entirely separate from the upper and lower convolutions until quite at the anterior pole. The third frontal measures  $3\frac{1}{2}$  cm. in width, and is crossed vertically by three deep tertiary sulci.

The furrows between the frontal convulsions are deep and unbridged in any part. The precentral sulcus is not bridged. The precentral gyrus measures  $1\frac{1}{2}$  cm.

The Rolandic fissure begins well within the interhemispheric furrow and runs deep into the Sylvian. The post-central furrow is well developed.

The interparietal furrow is not well marked, being broken in three places by broad bands of cortical substance.

The region of the angular gyri is very irregularly disposed, but has nothing of especial interest. The convolutions of the occipital lobe are likewise complicated, but have no especial features.

The Sylvian fissure shows no abnormalities of development.

The three convolutions of the temporal lobe are quite regular.

*Internal Aspect.*—All convolutions and furrows conform closely to the customary type. The calcarine and occipito-parietal fissures are of normal development.

*Inferior Surface.*—There are no construction abnormalities present.

*Left Hemisphere.—External Aspect.* The development of the three frontal convulsions is less regular than those of the opposite hemisphere. The convolutions fuse together into an intricate mass of small gyri six cm. from the pole. The praecentral furrow is without bridging its entire length.

The two central convulsions are fairly broad, and well developed. The Rolandic fissure conforms to the usual type.

The interparietal fissure is better marked than its fellow of the opposite hemisphere. The occipital and angular convolutions conform quite closely to those of the contralateral hemisphere.

*Mesial Aspect.*—The convolutions are quite regular in type. The primary fissures are unbridged.

*Inferior Aspect.*—The convolutions conform in all details to those of the other hemisphere.

*The Gray Matter.*—This averaged in the central regions  $2\frac{1}{2}$  mm.; in the posterior portions 2 mm.

*Corpus Callosum.*—The genu of the corpus was quite small, while the body in its thickest and best developed part was 3 mm. thick. 7.80 cm. back of the anterior extremity of the genu the white substance began to diminish in thickness, and then suddenly became a thin leathery membrane less than 5 mm. in thickness. This completely covered the ventricles. The length of the membranous portion of the body was  $4\frac{1}{2}$  cm. The splenium had entirely disappeared.

*Centrum Ovale.*—The white matter has apparently been diminished to one-half its former depth, its place having been taken up by the dilated ventricles.

*Lateral Ventricle.*—Anterior horns. These are equally but widely dilated. Two prominent knobs of white substance stand out from the wall of the right horn. The septum lucidum is represented by a few string-like fragments attached to the corpus callosum and floor of the ventricles, in their anterior portion, while in the posterior regions it has entirely disappeared. The fornix is atrophied, and with difficulty can be traced.

The basal ganglia stand out prominently from the floor of the ventricles. The anterior gray commissure is intact but is stretched to a thin cord. The posterior commissure is also present but is attenuated to the size of a thread.

*Lateral Horns.*—The distension is here equal to that of the anterior horns.

*Posterior Horns.*—The dilatation is equally marked as in the anterior horns.

*Choroid Plexuses.*—These are but slightly granular. On both sides there is a white thrombus in a prominent vein.

The tissues surrounding the lateral ventricles are indurated and cut quite differently from the surrounding white substance. The

lining membrane is considerably thickened, pulls off readily, but has remained transparent.

*Third Ventricle.*—The distension here is as great as in the lateral ventricles. The infundibulum is much thinned. The commissure of the optic nerves has been distorted and apparently somewhat thinned by the pressure from behind.

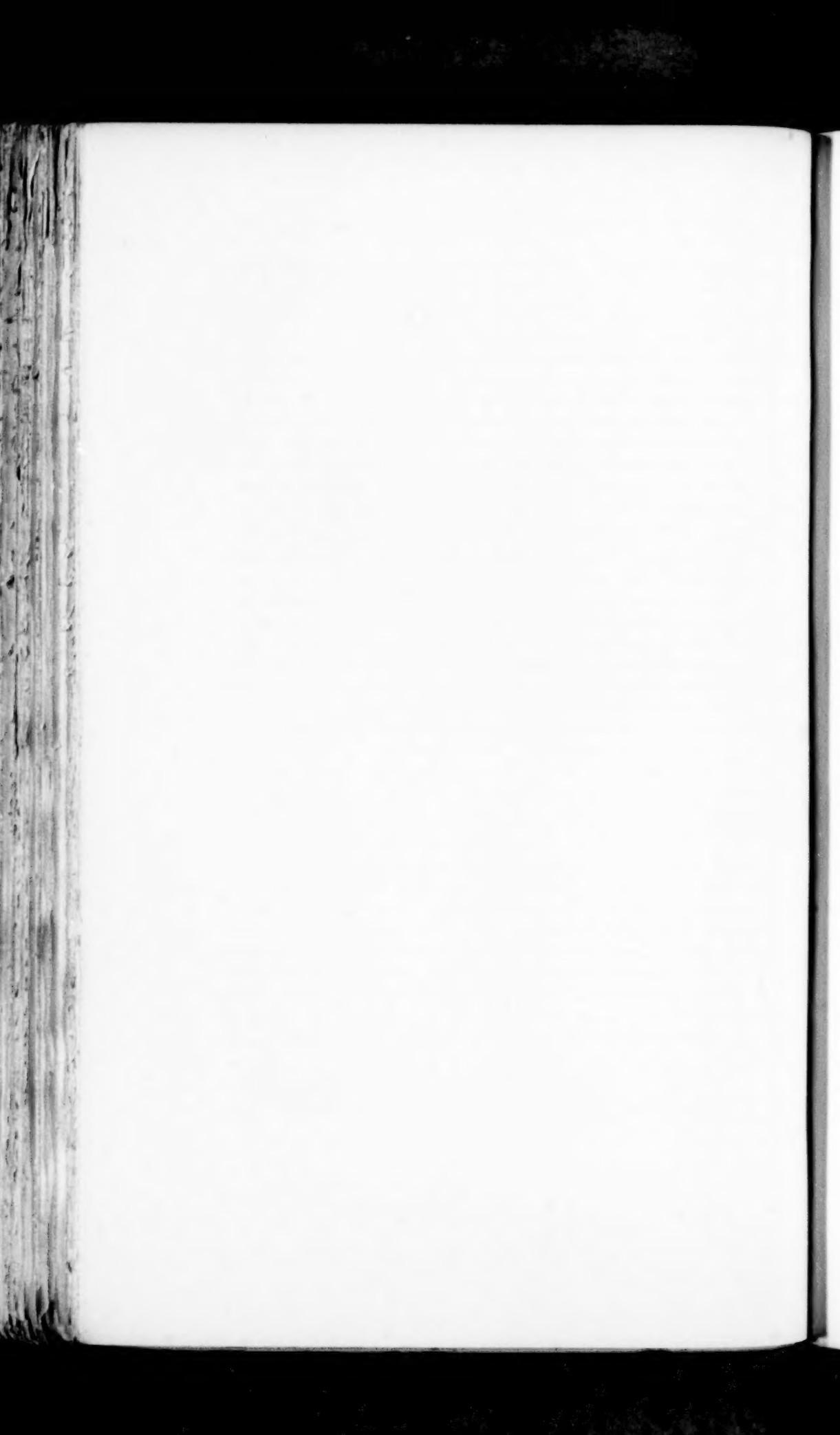
A microscopic examination of the atrophied portion of the corpus callosum showed that the medullated fibres had entirely disappeared, and had been replaced by a fine felted meshwork of fibrillæ, apparently of neuroglia origin, having round nuclei thickly scattered among them. The vessels in the atrophied portion of the body were not notably diminished in numbers, and around them in places were proliferations of coarse fibrillæ staining differently from the others with safranin and nigrosine, and seemingly belonging to the connective tissue. The vascular walls were not thickened.

From the clinical report and anatomical examination there had been, in this case, an early instability of the nerve tissues of the brain, with the result that periodical nerve storms occurred taking the form of epileptic attacks. Whether an early dilatation of the cerebral ventricles was an influencing factor in the induction of these seizures is uncertain. The full evolution of the convolutions would indicate that at least it did not begin until the brain had attained about its maximum of development. In any event during the years of growth of the body and early womanhood this dilatation did not advance, as the patient from her 18th to her 40th year showed no progressive dementia or signs of focal brain trouble. Only after that period came a time when to the ordinary epileptic crises a progressive weakening of the mental faculties of a comparatively rapid nature attended by seizures differing in character from the earlier ones was added. These insults were not of graver aspect than those preceding them, and were mainly differentiated by the period of unconsciousness being prolonged, not for minutes but for several hours. Finally death came; not from the primary disease but from an intercurrent malady.

In looking over the pathological anatomy of the case it becomes apparent that disease of the choroid plexuses had little to do with

the general malady; in fact, whatever lesion was noticeable in these vascular organs was of unimportant character and had little bearing upon the evolution of the hydrocephalus. The longitudinal and lateral sinuses were patent and free from disease, the Pacchionian granulations were not more prominent than is usual at the age of the patient, and otherwise the autopsy fails to assign a sufficient cause for the existence of the hydrocephalus internus. Can we refer it to an imperceptible though present stoppage of the return blood-flow through the smaller veins and lymph channels ending in the pia mater? From the gross pathology of the cerebral hemispheres there is no evidence to substantiate this view, local or general disease of the veins or lymph spaces of ancient character or the appearance of congestions or anaemic states of the tissues being absent. It is, however, the most probable theory.

The similarity between the symptomatology of hydrocephalus internus of the adult type in its ordinary form and that of cerebral tumors is of considerable importance both from a diagnostic and surgical standpoint, and should be well borne in mind before an operation is decided upon when there are no definite focal symptoms.



## THE PATHOLOGY OF ACUTE DELIRIUM.<sup>1</sup>

BY H. A. TOMLINSON, M. D.,

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The term *delirium* is generally used to describe a state of confusion with excessive mental activity, which is incoordinated, prompted by centrifugally generated impulses, and without relation with the environment. The significance of this condition is the same, then, except in degree, as insanity, and its most conspicuous manifestation is usually called "acute delirious mania."

The reception of a number of cases of delirium within a short time, in the year 1894, led us to take up the study of this form of mental disturbance; because our experience with this series of cases did not correspond with the generally accepted views as to the clinical course and pathology of delirium. Since that time we have studied all of the cases of delirium coming into the hospital with especial care, and have kept detailed records, both of the clinical manifestations and also of the post-mortem findings.

It will facilitate the study of this subject to recognize at the outset, that the mind, so called, is not an entity. Also, to quote from what the writer has said elsewhere, "When we take into consideration that insanity is the manifestation of alteration, not destruction of function, we can appreciate that the activities involved are the same in amount and kind, in both normal and abnormal cerebral functioning. In the one case they represent the response to external stimuli, the effect of which is habitual; while in the other they are excited by centrifugally generated stimuli, more or less out of accord with external relations. There is no abstract difference between the conduct of the sane and the insane! The difference lies in the nature of the experience which gives rise to the conduct, and the loss of control of the activities which are manifested in the conduct."

<sup>1</sup> Read before the 59th Annual Meeting of the American Medico-Psychological Association, at Washington, D. C., May 12-15, 1903.

The clinical picture of delirium, or rather the panorama furnished by its course, when the outbreak is acute, presents first the evidence of confusion. The patient is introspective, depressed, and irritable. This mental state exists because external impressions cease to be accurately cognized and related, and consciousness is dominated by the effort to overcome the resulting confusion. Therefore, external impressions are not fully recognized, nor properly related; and the resulting discharges of nervous energy are imperfectly coordinated and more or less futile. This same mental state is present in partial alcoholic intoxication; as the result of fear; in the presence of severe acute pain; in the overworked student, or the overstrained business man. In these individuals, however, a very slight stimulus, change in environment, or the intervention of sleep, dissipates the confusion. But in the victim of brain instability, who is suffering from physical disease, exhaustion from overwork, or the depression of shock, the confusion deepens, the irritability increases, and the futility of effort becomes more marked; until the individual secludes himself, wanders aimlessly away, or makes efforts at self-destruction. At this stage, if a sufficiently strong external impression, such as an abrupt command, or personal contact, is made to break in upon this concentration of effort, there results a petulant answer, or even an outbreak of passion, accompanied by more or less motor activity, in the form of restlessness, a hysterical seizure, or even an assault. As the confusion becomes deeper, the irritability increases; until finally the incoordinate discharges of nervous energy become continuous, and persist until exhaustion supervenes; the ravings become a confused whisper, the movements degenerate into a tremor, and annihilation results; or, again, the confusion and incoordination, reaching a certain degree of intensity, begin to subside; and the path is traveled backward until definiteness and uniformity are again reached. The delirium occurring in connection with typhoid fever, pneumonia, or general sepsis, does not differ from that described above except in degree; and the variations will be found to be dependent, not upon the apparent physical disease, but upon the amount of brain instability in the individual. In the study of this mental state, due weight has not been given to the influence of the conditions preceding the delirium; the relation of the delirium to similar manifestations in disease conditions other than insanity; or to the comparison of the post-mortem findings

in cases of delirium, with those present in cases of acute insanity dying without any manifestation of delirium. It is a great misfortune that the brain is not so carefully studied in those dying from typhoid fever, pneumonia, and general sepsis, as it is in the insane. We are too apt to take for granted that a certain condition found post-mortem in the brain of a person dying insane is the cause of the insanity; losing sight of the fact that we do not yet know that the changes we find do not also exist in the brains of the sane who die under similar physical conditions. Indeed, our observation of the macroscopic changes in the brain and its coverings, among the insane, and our study of the histology of the cortex, would tend to confirm this doubt; so far as any changes are apparent, aside from those present in dementia; and even these can often be found in advanced or premature senility, where no mental disturbance has existed. It is the belief of the writer that the time will come when we will recognize the histological changes, found in the brains of the acutely insane who die, as the result of the physical conditions which preceded and were associated with the insanity, and not as the cause of the mental disturbance. This is especially true with regard to the condition which is the subject of this paper.

The term delirium has by usage come to be applied to a mental state, the principal characteristics of which are, insomnia, raving, and incessant motion, accompanied by profound exhaustion. When the termination is in death, it is preceded by coma, vasomotor paresis, and pulmonary edema. The term raving also implies a continuous process, in which the conversation and conduct of the patient bear no relation to his surroundings, and are not influenced by them. The rapidity of the mental processes, and the excessiveness of the motor activity, give to the sum of the manifestations the character of violence. The result of these continuous violent manifestations is exhaustion; because the patient does not sleep, nor take sufficient food. However, a careful study of the details of the history of these cases, antecedent to the delirium, will discover some degree of brain instability; the presence of intoxication or infection; the persistence of insomnia, and usually obstinate constipation. So the antecedents and concomitants of delirium are the same. Whatever peculiarities there may be in the delirium associated with insanity, are to be accounted for by the greater degree of brain instability in the individual. For instance, we have

not found that alcoholic delirium is due directly to the effect of alcohol; but that, on the contrary, it is more apt to make its appearance after the alcohol is withdrawn temporarily. The patient has taken little or no food for some time, and the withdrawal of the narcotic influence of the alcohol makes apparent the effect of exhaustion, which is exaggerated by the want of sleep. Or, in other words, the nervous system is exhausted; so that it is not the alcohol, but the failure of nutrition and the autointoxication, that are the causes of the delirium. The victim of alcoholic excess, who is not markedly unstable, who eats and sleeps well, and is not constipated, may have cerebral hemorrhage, or uremic convulsions, but he will not become delirious. Furthermore, the so-called delirium tremens, or *mania a potu*, is not true delirium; because the patient is not unconscious of his surroundings, nor his movements without purpose. On the contrary, they are excited by the distorted and perverted impressions which come to him through his special senses, from his surroundings. It is only when through progressive exhaustion, his delirium takes on the characteristics of what used to be called "coma vigil" that his condition becomes a true delirium. The same separation is to be observed in the association of delirium with insanity. The condition, delirium, is a mental state engrafted upon the insanity, not directly due to the mental disturbance, but rather resulting from the impaired vitality, brought about by insomnia, refusal of food, and excessive motor activity. Then, too, the insanity disappears in the delirium, and if the patient does not die, emerges in its original form as the delirium subsides. Where the delirium is the first apparent manifestation of the mental disturbance, a careful study of the history of the patient has disclosed conditions in his physical and mental status, which have brought about exhaustion of the nervous system alone, with autointoxication, or some form of general sepsis as a concomitant.

The reason for the intoxication, or its effect, is not so apparent as would be supposed. It is not so uncommon in cases of chronic insanity, during recurrent periods of maniacal excitement, for the patient to go without sleep for long intervals, to take only very little food, and to be in almost constant motion; without the development of delirium, or the determination of physical exhaustion. The history of one woman shows this well. She was 85 years old,

had been insane for 25 years, but was in robust health. During a period of three years, while she was under the personal care of the writer, her condition was as follows: For from ten days to two weeks she would be quiet and well behaved, take an abundance of food, and sleep well. Then a maniacal outbreak would occur, and she would become violently excited, noisy and destructive. These outbreaks lasted about six weeks, and during this time she took only a small amount of nourishment, and slept very little. At one time, while under careful observation, it was found that she did not sleep at all for ten days, nor was she quiet during that time; and yet, she never showed any evidence of physical illness or exhaustion, but she did lose in weight. Such cases are not very uncommon, but not often so extreme. On the contrary, acute delirium, as an apparently primary manifestation, or as appearing during the course of an outbreak of mental disturbance, does not have such a history. When delirium appears as a primary manifestation—the so-called acute delirious mania—it is usually preceded by confusion and depression, with a period of irritability and restlessness before the outbreak; and when it is superadded to another form of mental disturbance, there is always insomnia, refusal of food, and excessive motor activity. Also, it is just as liable to occur in cases of acute depression, as in patients who are excited. Again, when delirium is present during the course of typhoid fever, pneumonia, or general sepsis, it does not necessarily occur in those cases where the disease itself is most severe. In pneumonia, as in typhoid fever, the nervous system may be involved from the first. It not infrequently occurs, in our experience, that cases of typhoid fever and pneumonia are committed to the hospital as insane, the physical disease being completely masked by the mental disturbance. An old man who had been picked up on the road, where he had been wandering aimlessly about, was found to be confused, irritable, and depressed; suspicious, and indisposed to talk. He was brought to the hospital as insane, having passed almost immediately into a state of delirium. He was found to be in the third stage of a double pneumonia and died in two days. It is true that these people are usually suffering from mental disturbance, and in our experience have a history of brain instability; but this does not explain the delirium, although it does account for the mental disturbance. The insane suffer from

typhoid fever, pneumonia, and general sepsis, without becoming delirious; and those who are not insane suffer from delirium. Then, too, both the sane and the insane suffer from insomnia, exhaustion, and impaired nutrition, without becoming delirious; although these three conditions are always the concomitants of delirium. However, there is a constant factor in these cases, which is the determining element in the onset of the delirium; and that is that form of intoxication which results from failure in elimination. It is well known that uremia is a very common cause of delirium; but failure of the function of the kidneys is usually not recognized, unless it is the manifestation of a well-defined chronic nephritis; and in our experience, in these acute fulminating forms of mental disturbance, the condition of the vegetative organs is apt to be ignored entirely.

The following distribution of cases illustrates the unity of delirium from the clinical standpoint. All of these people were sent to the hospital as insane. The physical conditions present were either not sought for, or were not recognized; and the mental state so dominated the physical conditions that those associated with the patient saw nothing else. In other words, the picture of delirium was so apparent and conspicuous, that the possibility of the presence of any one of the various physical conditions with which it might have been associated did not suggest itself.

During the past eight years there have been received into the hospital at St. Peter, 87 persons suffering from delirium: 50 men and 37 women. Of this number, 12 men and 11 women were suffering from so-called acute delirious mania; 8 men from alcoholic delirium; 17 men and 10 women from uremic delirium; 2 men from narcotic delirium; 2 men from acute syphilitic infection; 1 man convalescing from smallpox; 4 men and 4 women who were suffering from typhoid fever which had not been recognized; 3 men and 10 women suffering from septic delirium; 1 man and 1 woman suffering from lobar pneumonia which had not been recognized; and 1 woman suffering from puerperal delirium. A certain number of cases, especially those suffering from sepsis, have some elevation of temperature from the beginning. In others there is practically no fever while in a certain number the temperature becomes very high just before death. But this latter is not a specific condition, as the same phenomenon appears in a number of brain con-

ditions. Outside of those cases, where there was active disease of the vegetative organs, we have not found that the delirium bore any definite relation to the temperature, nor the temperature to the delirium. Indeed as will be noted in one of the clinical histories to be given, the delirium was at its height when the temperature was subnormal. The following clinical and necropsy records will illustrate the different physical conditions under which delirium develops, in our experience. These cases were chosen as types and they represent all of the forms under which delirium appeared in the 87 cases referred to. For the purpose of this paper only a summary of the clinical history and necropsy record is given.

J. P. Admitted August 23, 1902. Woman; 27 years old; single; born in Sweden; a domestic by occupation. No history of the family was obtained, and nothing concerning her personal history could be learned except that she was said to have had a severe attack of typhoid fever in 1900. On August 14, she is said to have had an attack of acute indigestion. This was followed by a period of depression and confusion. She then had outbreaks of maniacal excitement and was removed to a general hospital. The excitement was accompanied by violent emotional religiosity; she heard voices and saw visions. The disturbance was only occasional, but the confusion persisted. She was brought to St. Peter after an unusually violent outbreak during which she attacked the nurses.

She was poorly nourished, her flesh flabby, skin cool and moist, vitality impaired. The temperature was  $103.6^{\circ}$  pulse 106 and weak, respirations 23. The heart was slightly enlarged and displaced to the left. There was diminished resonance over the upper lobes in both lungs anteriorly. The abdomen was distended and tympanitic; the tongue heavily coated posteriorly, its edges reddened and fissured. The teeth and lips were covered with sordes; the appetite was impaired and she was obstinately constipated. There was some retrodisplacement of the uterus with adhesions. The vaginal secretion contained staphylococci.

She was confused, irritable and restless, there was visual and auditory hallucination, her speech was incoherent, and she was in constant motion. The next morning the temperature was  $102.5^{\circ}$ ; pulse 106; respirations 23. After a hot bath, with cold to the head she became quieter, but the furious violence, confusion and in-

coherence recurred at intervals; she did not sleep and took no nourishment voluntarily. The day after she came to the hospital the Widal reaction was found to be present, and again in 4 and 8 days. As the disease progressed, the temperature became lower and she was not so much disturbed. Mental convalescence kept pace with the physical, and at the end of two months she was sent home recovered. The clinical manifestations of the typhoid fever were not marked at first, but the course of the disease was typical, though mild afterward.

The following case history illustrates an almost exactly similar mental condition, but not associated with apparent physical disease.

T. L. Admitted January 28, 1903. Man; 26 years old; single; born in Norway; a day laborer by occupation. His father and brother have been insane, and he has always been considered peculiar. There is no history of ill health until about a year ago when the patient was operated upon for appendicitis. His present illness began about three days before coming to the hospital. He had been confused and depressed for some little time, but suddenly became disturbed, noisy, the victim of religiosity and pietism; wandered away from home; had occasional outbreaks of explosive violence, and also attempted suicide.

When admitted to the hospital, he was fairly well nourished, the flesh was firm and the skin warm and dry. Temperature 99.6°; pulse 100, irregular, full, and bounding; respirations 22. The resonance of the lungs was impaired posteriorly, and the respiratory sounds were harsh and dry. The abdomen was full and tympanitic. The tongue was dry and heavily coated, the teeth were covered with sordes, the breath was foul, appetite and digestion were impaired and he was constipated. The urine was reduced in amount, the urea and chlorides were reduced in amount; there was biliary coloring matter present and hyaline casts. He was very much exhausted, there was a coarse muscular tremor present; gait feeble and unsteady. He was confused, suspicious; apparently apprehensive, and at times violent, destructive and pugnacious. The face was flushed, but the extremities were cold and clammy. His speech was incoherent and bore no relation to his surroundings.

The next day he was still more disturbed; required constant personal attention, did not take food voluntarily; displayed the furtive

suspicion of an animal, and believed he was being poisoned. He did not sleep. Between February 1st and 6th he grew steadily worse, did not take any food voluntarily, nor sleep; had to be catheterized, and the amount of urine was scant. He tossed about, muttered incoherently, shrank from every one, and resisted violently everything that was done for him. The right heart was dilated, and on the 6th there was evidence of commencing pulmonary edema. On the 7th the urine was scanty; the heart grew dilated, and the pulse small and rapid, the face pale. He grew steadily weaker and died at 6:15 in the evening. The day after he was admitted the temperature became subnormal; but from that time on steadily rose until the evening he died it rose to  $106.4^{\circ}$ . The pulse was 160, and the respiration 54. The last day there were only 480 cc. of urine excreted.

*Necropsy* 3 hours after death. The subdural space contained some fluid; the dura was roughened externally, smooth internally. There was extravasation of blood over the inner surface of the dura, near the median fissure, in the parietal region. The dura was closely adherent the whole length of the median fissure, over the convexity of the brain; its vessels were engorged and the sinuses, which were shrunken in caliber, contained dark clots. The brain weighed 1332 gms. The pia was increased in thickness, especially along the vessels. The blood vessels, especially the veins, were engorged. There was some little extravasation of blood in the arachnoid space over the inferior portion of the parietal region and the posterior portion of the temporal region. At the base the frontal lobes were adherent by their proximal surfaces; the cranial nerves and the blood vessels were in a mat of pial adhesions. The velum was thickened and its vessels were injected; the pillars of the fornix were adherent and the choroid plexuses were granular and cystic. The ependyma of the ventricles was edematous, its vessels injected, and these conditions were most marked in the floor of the fourth ventricle. The white substance was softened, the puncta were numerous and marked; the cortex pale. There were 200 cc. of cerebrospinal fluid.

The heart weighed 283 gms. Its muscle was firm and much hypertrophied. The right side was distended and the cavity filled with fluid blood. There was a large chicken-fat clot in the left ventricle, extending into the aorta. There were dark clots in the

pulmonary veins. All of the valves were competent. The cusps of the aortic valve were thickened and atheromatous. The leaflets of the mitral valve were thickened and adherent to the endocardium by fine bands. There was some chronic endocarditis.

The right lung weighed 297 gms. The visceral pleura was thickened. The apex of the lung was slightly emphysematous. There was a small amount of muco-purulent material in the bronchi. The left lung weighed 240 gms. and was in practically the same physical condition as the right. Both lungs were edematous.

The spleen weighed 184 gms. Its capsule was thickened and adherent; its substance was fibrous. The organ was deeply congested.

The liver weighed 1672 gms. Its capsule was fairly free, except at the upper border, where it was quite adherent. Its substance was pale, and the outline of the lobules was poorly defined. It oozed blood on section.

The right kidney weighed 141 gms. Its capsule was slightly adherent. The stellate veins were prominent. The medullary substance was slightly increased in amount. The pyramids were small and distorted. The left kidney weighed 141 gms. and it presented the same physical conditions as the right, except that they were more marked.

The suprarenal bodies showed no evidence of disease.

The omentum was adherent to the parietal wall at McBurney's point. The appendix was absent. The cecum and ascending colon were adherent to the sheath of the psoas muscle for a distance of 15 cms. The descending colon was also adherent to the muscle sheath on the left side, and the transverse colon was adherent to the under surface of the liver. It was very much dilated.

A. K. Admitted February 3, 1902, Man; 35 years old; single; born in Germany; farmer by occupation. No facts in the history of his family were obtained. The patient is said to have been engaged in some very active business as a young man, which he had to give up on account of his health. A sister has been insane since she was a young girl, and the members of the family are spoken of as queer and superstitious. On February 1, the patient was chosen as a juror in a murder trial, in which the neighborhood was much interested. The night after the first day of the trial he did not sleep; and the next day he was noticed to be restless

and uneasy. That night he was again wakeful, and toward morning became disturbed, accusing a brother juryman of revealing the secrets of the juryroom and of poisoning him. During the day he became violent at times, but would answer ordinary questions intelligently. However, he became more and more confused, suspicious and afraid; and after another sleepless night was brought to the hospital.

He was found to be fairly well nourished, and weighed 134 pounds. His vitality was impaired, the skin was dry and hot; temperature  $101\cdot4^{\circ}$ ; pulse 116 full and bounding; respirations 22. The heart was increased in size, and displaced to the left; the arteries were slightly atheromatous. The lungs were resonant throughout. The abdomen was full and tympanitic, the muscles rigid. The tongue was coated and dry; the appetite and digestion were impaired and he was constipated. He passed 1300 cc. of urine the first 24 hours and nothing abnormal was found in it. He was confused, disturbed and incoherent; suspicious, afraid and disposed to be violent; apparently attempting to ward off the danger suggested by visual and auditory hallucination, and visceral consciousness. He did not sleep the first night after coming to the hospital, and the next morning was more confused; struggling and screaming, or muttering incoherently to himself. The temperature was  $100^{\circ}$ ; pulse 84; respirations 22. He took very little nourishment, required constant personal attention, and did not sleep. The next day he was no better and the urine showed evidence of nephritis. He grew steadily worse, talked continuously and incoherently, had occasional outbreaks of violence, prompted by fear, did not take food voluntarily, and slept very little. On February 9, after an apparent remission following 6 hours sleep, the right heart became dilated, respirations very rapid and shallow; cyanosis set in, and he collapsed, dying at 12.30 p. m. The temperature did not go above  $101^{\circ}$  at any time.

*Necropsy* ten hours after death. The body was well nourished. Post-mortem rigidity was present, and there was lividity in the dependent parts.

The dura was thickened and adherent along the median fissure over the whole convexity of the brain, and the fibrous meshes holding the dura and pia together were filled with clotted blood. The internal surface of the dura was roughened by patches of mem-

branous film; its thickness was increased and the vessels were full of blood. In the subdural space there was an ingravescent hemorrhage over the whole convexity; most marked over the frontal portion. The blood apparently came from some of the small branches of the middle meningeal artery. The amount of blood was greatest on the right side.

The pia was thickened, and its vessels were distended with blood, especially over the parietal lobes. The cerebrospinal fluid measured 140 cc. The brain weighed 1205 gms. There was marked dimpling of the surface of the convolutions in the frontal and parietal areas, especially along the median fissure and over the superior parietal lobules. In the Sylvian fissures there was an extravasation of blood in the arachnoid space. At the base there were marked inflammatory adhesions involving both blood vessels and nerves. The velum was thickened, deeply congested, and opaque. The choroid plexuses were granular and cystic. The vessels of the ependyma were deeply injected and there was extravasation of blood underneath the ependyma in the lateral third and fourth ventricles. The puncta in the nuclei and white matter were numerous and prominent. The cortex was thin and purplish gray in color.

The heart weighed 240 gms. Its muscle was firm. The right side of the heart was dilated. The aortic valve was competent but its cusps were thickened and shrunken. The leaves of the mitral valve were also thickened, but the valve was competent. The heart was full of fluid blood.

There were no pleural adhesions. The right lung weighed 624 gms. There was hypostatic congestion throughout the lower lobe. The left lung was collapsed. It weighed 425 gms. There was lobular congestion throughout this lung, and atheromatous patches scattered over the pleural surface, also some calcareous concretions. The lung was easily inflated and no evidence of external injury was apparent.

The spleen weighed 114 gms. Its capsule was thickened and the pulp was firm and dark.

The liver weighed 1361 gms. The gall-bladder was full and its duct patulous. The capsule was adherent; the cut surface oozed blood, and there was some parenchymatous increase.

The right kidney weighed 142 gms. Its capsule was free. The

kidney was lobulated. There were numerous scars and infarcts over its surface; the substance was deeply congested; the pyramids were distorted, and there was some medullary increase. The cortex measured 5 mm. The left kidney weighed 155 gms. The same physical conditions existed as in the right.

The intestines were distended by gas. The bladder was full of urine.

*Microscopical Examination.*—Portions of each lobe of the brain were stained by Nissl's stain, by chrome-silver stain and by hematoxylin and eosin. The pathological condition was not different in one hemisphere from that in the other hemisphere in the cerebrum, and seemed to be much alike in each lobe. Much effusion of leucocytes was noticed in the pia-arachnoid, in the walls of vessels, in the lymph spaces and in the gray matter itself. Capillary hemorrhages were numerous in all these localities also, and thrombi were met with in the cortex and in the underlying white matter. Some sclerosis of vessels was also noted.

Nerve cells were shrunken and they over-stained; the nucleus staining darker than the cell bodies in a majority of instances. No spindles are seen. The corpus is granular, finely in places, coarsely in other portions. Degenerated cells are very numerous. In a number of cells dendrites are plentiful at the apex.

There is an increase of neuroglia in the proportion of 4 to 3. The medulla oblongata does not show acute systemic degeneration or sclerosis.

The pituitary body shows capillary hemorrhages, leucocytic infiltration over large areas, increase of connective tissue with cyst formation, and acute inflammation of the dural capsule.

The pineal gland shows a close packing of little round cells and numerous crystals.

Sections of vessels from the circle of Willis show adhesions of red corpuscles to endothelium, an inflammatory condition of the adventitia, and thickening of the middle coat.

*Liver.*—Capsule adherent. Much infiltration with leucocytes. Thickening of connective tissue. The demarkation of glandular structure is generally lost. A large quantity of detritus noted. Commencing cystic formation.

*Kidneys.*—Much detritus present. Increase of little round cells inside and outside the tubules. Granular degeneration of epithe-

lum resembling cloudy swelling. Numerous capillary hemorrhages present.

*Bacteriology.*—Pericardial fluid gave cultures of *B. coli*. The media inoculated from cerebrospinal fluid remained sterile.

T. W. Admitted September 5, 1899. Man; single; 30 years old; born in New York; book-keeper by occupation. No information was obtained concerning his family, and only the recent history of the patient was known to his friends. He was known to be industrious, quiet and well behaved, and so far as known to his friends had been in good health until a few weeks before the outbreak of the mental disturbance. For a time before his illness he had been under treatment for a "gastric disorder." About a week before coming to the hospital he was noticed to be confused, restless, suspicious, he could not sleep, was the victim of religiosity, and had persecutory ideas. The next day he wandered away, was picked up by the police and put in jail, where he remained two days, until found by his friends when he was taken to the City Hospital in Minneapolis. Two days later he was brought to St. Peter.

He was found to be fairly well nourished, but the flesh was soft and flabby, the skin cold and moist; vitality impaired. Temperature  $105.2^{\circ}$ ; pulse 142; respirations 28. The heart was not enlarged, but the sounds were indistinct. The lungs were resonant throughout, but the respiratory sound was indistinct in small areas scattered over the lungs. The abdomen was full and dull over the bladder and large intestine. The bowels had not moved for three days and there was retention incontinence of urine. The tongue was heavily coated and he refused food.

He was feeble physically, confused, dazed in appearance, very much disturbed and incoherent in speech, suspicious and afraid. He passed 1650 cc. of urine in the first 24 hours, which contained some albumin, also leucocytes, and hyaline casts. He was better the next day, after the bowels and bladder had been emptied, the administration of a hot bath, and some food. The temperature fell to  $102^{\circ}$ ; the pulse to 128; respirations 24. He continued, however, to be delirious, restless and sleepless. During the next week there was no material change in his condition, except that the temperature became subnormal. On September 10, vasomotor paresis became apparent, the right heart was dilated, the pulse

weak and irregular, and the respiration shallow. The pupils were widely dilated, the eyes glazed, but he still whispered incoherently. There was some tenderness over the abdomen and the bowels moved involuntarily. He had to be catheterized and took no food voluntarily. During the next three days the temperature went down to  $97.2^{\circ}$ ; the pulse was 112, weak and compressible; respirations 24. The lungs gradually filled up and he died during the night.

*Necropsy* 8 hours after death. Rigor mortis present; lividity in the dependent parts. The lips are marked by the teeth and covered with sordes.

The dura was adherent to the bone, slightly thickened, and there were spots of extravasation scattered over the inner surface. The sinuses were full of dark fluid blood. The pia was thickened, opaque along the vessels, and its blood vessels were distended. The brain weighed 1653.6 gms. The pia-arachnoid was distended by gelatinous fluid over the whole convexity, and the distension was so great that the convolutions were flattened and the sulci opened. There were 75 cc. of cerebrospinal fluid. The dura was adherent along the median fissures over the whole convexity. The third ventricle was small and shallow; the foramen of Monroe was closed; the velum thickened, opaque and its vessels injected. The ependyma in the ventricles was edematous, and its vessels deeply injected. The choroid plexuses were cystic. The white substance was edematous and the cortex thin and pale.

The heart weighed 312 gms. The right ventricle was covered with fat, which dipped down into the muscular tissue. There was atheroma about all of the orifices of the heart and the cusps and leaflets were thickened. The valves were competent. The orifices of the coronary arteries were narrowed. The heart was full of fluid blood.

The right lung weighed 811 gms. It was adherent throughout. There was some fibrosis of the lung, hypostatic congestion at the base, and edema throughout. The left lung weighed 561 gms. There were no adhesions; some hypostatic congestion at the base, and edema throughout.

The spleen weighed 124.8 gms. Its capsule was thickened and its substance dense and fibrous.

The liver weighed 1747 gms. It was adherent over the upper

portion posteriorly. Its capsule was adherent. The gall-bladder was shrunken; its walls were thickened and adherent. The duct was patulous. The substance of the liver was pale, and there was marked fibrous increase.

The right kidney weighed 156 gms. Its capsule was slightly adherent; the stellate veins were prominent. There were numerous small cyst scars scattered over its surface. The pyramids were poorly defined; the cortex thin and pale. The left kidney weighed 187 gms. Its capsule was adherent; the same physical conditions obtained as in the right, and the pelvis was full of fat.

The bladder was contracted, but contained a small amount of urine.

*Morbid histology of brain cortex:* Stained by Nissl's, the temporal region over-stained readily, or failed to decolorize properly. The molecular layer is increased in thickness but shows a poverty of cells, neuroglial as well as nervous; there is evidently much exudation of non-cellular material. The pyramidal cells fail to show a clear distinction of nuclei and nucleoli; they barely show indications of cell prolongations, and there is a thick, dark centrosome, which occupies much of the cell in most instances. There is no increase of neuroglia, no nerve-cell replacement, but there is much colorless, structureless material between the histologic elements. The vessels are not markedly diseased. Stained by chrome silver, the same area shows a scarcity of nervous elements, in the molecular layer noted above. There are more artefacts than is usually the case in the small pyramidal layer. The neurodendrons which retained the silver show a scarcity of dendrites, especially at the apex. The large neuroglia cells with feathery arborizations are not very distinct, but those with ray prolongations (astrocytes) are unusually distinct. The smaller blood vessels are over-distended with blood, slightly aneurismal and more than ordinarily numerous.

The cortex of the prefrontal area, impregnated with silver chromate shows pathologic changes similar to those just described but greater. The basal dendrites are few. The neuroglia cells are enlarged but show very little filaments.

The motor area, by the same stain, shows pathologic changes similar to those just described. The cell bodies are not noticeably small, but the filaments of astrocytes are better developed than

in the prefrontal area, while diseased blood vessels are more conspicuous.

H. R. Admitted November 29, 1899. Woman; a native of Sweden; age 32 years; height 5 feet 3 $\frac{3}{4}$  inches; weight 85 pounds; hair light brown; eyes gray; married and has three children, the youngest being five years; father living, mother died in child-birth. There is no history of constitutional disease in the family. The patient was healthy as a child and there is no record of illness during adolescence. She was married at 21 years of age and her first child was born one year after marriage. She had been peculiar for more than a year, and three months before coming to the hospital, following an abortion, she became anemic and suffered from insomnia. She grew gradually worse, was hysterical and developed persecutory ideas. At the time of admission she believed she was being poisoned, and there was reptiles in her stomach, also that harm was coming to her children. Nutrition was poor, flesh flabby, skin cool and moist, vitality impaired; temperature 100.6°. The heart was normal in size and position, its action forcible and the second sound was accentuated. There was no atheroma. There was no evidence of disease in the lungs. The stomach was distended and the abdomen tympanitic. The tongue was red at the edges with a white coat posteriorly. She did not take food voluntarily, digestion was impaired and she was constipated. Urine analysis, 460 cc. in 24 hours, sp. gr. 1.027 yellow, clear, sediment 3 per cent pus, uric acid .33 per cent, urea 2.5 per cent, phosphoric acid .15 per cent, sulphates 1 per cent, mucin 10 per cent, chlorides 1.5 per cent, biliary coloring matter present. There were leucocyte casts. She had a slight leucorrhea. The perineum and cervix were lacerated and the latter was eroded, the uterus was large, heavy and retroflexed. There was a slight cystocele and rectocele. The vaginal discharge contained staphylococci. The patient was confused and delirious, so that subjective tests could not be applied. The pupils were equal and measured 7 mm.; reaction to light was slight; accommodation could not be tested. The tongue was protruded tremulously in the median line. The muscles of the face twitched. All the reflexes were exaggerated and clonus was present. Coordination in the arms and legs was poor; she was untidy, stooped and staggered in walking; the manner was listless, and the expression vacant. She was delir-

ious and almost constantly in motion. The movements were choreiform and when not voluntary were in the nature of a spastic tremor. There was auditory and visual hallucination and visceral consciousness. She was the victim of religiosity and had persecutory ideas. She slept very little and her bowels were moved by laxatives and enemata. She was restless, bewildered, did not remain in bed and was constantly disarranging the bed clothing. She would lie quietly for a time, then jump up suddenly, grasp the bedding, or the clothing of the nurse, holding tightly and muttering to herself incoherently. She would, however, answer ordinary questions intelligently. The first two meals she ate voluntarily but afterward had to be fed mechanically and she did not sleep without a hypnotic. She continued to be excited, restless, constantly in motion, became more stupid, passed urine and feces in bed. When not closely watched she would get out of bed and roll on the floor. Occasionally she would become entirely rigid. She was apparently in great fear, but sometimes became aggressively violent, profane and obscene. Two weeks after admission she began to grow weaker and had a diarrhea with four or five stools daily. On the morning of December 12, 1899, she became more quiet; the temperature became normal and on the 14th, in the morning it went from 94° F. down below the register scale on the thermometer. (As nearly as could be determined by measurement afterward, the mercury was at 90°.) She was cold, the muscles were rigid, the respirations were shallow, the pulse was weak and quite rapid. The pupils were widely dilated; she laughed and muttered, occasionally tossing her arms about spasmodically. During the night her temperature gradually rose and in the morning was 102.5°. The heart's action was weak and resonance was impaired over the base of the right lung. There was marked hyperesthesia of the whole surface of the body; the abdomen was retracted and the special senses were painfully acute, especially hearing. The temperature gradually rose and on December 18, reached 105.2°. There was an almost continuous watery discharge from the bowels. She slept very little, but on the morning of the 19th the temperature went down to 104° and she took 8 oz. of milk. She swallowed with difficulty however, and was soon unable to swallow at all; grew more stupid, weaker and the convulsive movements ceased. The temperature gradually rose to 108° and she died at 5:55 p. m., respiration failing first.

*Necropsy.*—The body was emaciated, eyes and cheeks sunken, and the muscular development poor. The pupils were equal and measured 6 mm. in diameter. The upper lip was short and the teeth protruded. Rigor mortis was present; there was some discoloration of the abdomen and lividity of dependent parts. There was a small recent abrasion on the dorsal surface of the right foot and the skin of the abdomen was wrinkled. The scalp was fibrous and contained no fat. Externally it was covered with brownish hair and was free from scars and signs of disease. Internally there were numerous hemorrhagic patches. The skull was thin and hard; sutures apparent, diploe absent anteriorly; grooves for sinuses and vessels well marked. Externally the skull was free from scars and depressions. The brain weighed 1232.8 gms. There was considerable thickening of the dura and externally it was very rough and adherent to the skull. The sinuses and vessels were empty. The pia was thickened and injected and at the base its surfaces were matted together. There were 60 cc. of cerebro-spinal fluid. The convolutions of the brain were flattened and on the right side the angular gyrus was poorly defined. On the left side the Rolandic fissure communicated with the precentral fissure, the elements of which were united. The occipito-parietal fissure extended some distance on the surface. At the base the circle of Willis was complete and its vessels appeared free from disease. The cranial nerves were hard and shrunken and were involved in the pial adhesions. The choroid plexuses were granular and the velum interpositum was thickened and injected. The ependyma in all of the ventricles was thickened and injected, but this condition was most marked in the fourth. The vessels in the floor of the fourth ventricle were also deeply injected. The lateral ventricles were distended with fluid and dilated. The centrum ovale was edematous and shrunken. The puncta were well marked. The cerebellum was softened and the pons and medulla were softened and edematous.

The right ventricle of the heart was full of fluid blood, the left being empty and flabby. All the valves appeared competent. The heart weighed 198.4 gms. The left lung weighed 340.1 gms. The upper lobe was emphysematous; the lower lobe was in a condition of hypostatic congestion. The right lung weighed 850.4 gms. There were several nodules and an old scar at the apex. A

portion of the lower lobe was in a state of hepatization. The spleen weighed 226.7 gms. It measured 11 x 5 cm. Its substance was fibrous and its capsule adherent. The liver weighed 1474.2 gms. Its capsule was adherent in scattered areas and its substance oozed blood on section. The bladder was full and its duct patentous. The surface of the right kidney was covered with scars and its capsule was adherent, it was deeply congested and oozed blood on section. Parenchymatous increase was marked. It weighed 127.5 gms. The left kidney weighed 144.7 gms. The same physical conditions were present. Both suprarenal bodies were cystic. The appendix was 11 cm. in length, and free from adhesions. The ovaries were enlarged, the right weighing 11 gms., the left 9.5 gms. Both had small cysts on the surface. The bladder contained a small amount of urine.

*Morbid Histology of Cerebral Cortex.*—Sections from the frontal area anteriorly, stained by Nissl's method, showed very little definition between the nucleus and the corpus; the prolongations of the cells were generally unstained. There was some shrinking of the cell bodies in a majority of cells, and only occasionally the shrinkage was accompanied by a proliferation of neuroglia cells. There was much thickening of the walls of vessels, sometimes their lumen was filled by the proliferation, and the vessel was detached from the surrounding tissue. The nuclei of the capillaries were also much increased in number and the perivascular and lymph spaces were much distended. There were some miliary aneurisms in the vessels, and a varicose condition noted here and there. There was considerable detritus throughout the tissue. The pia-arachnoid, when seen in transverse section, was greatly thickened, covered with hyaline exudation, and filled with small round cells; it was in many places detached and in other places it appeared to be grown into the pyramidal cell zone. The white matter just beneath the gray showed much proliferation of neuroglia cells.

Sections from the motor area, stained by Nissl's method looked much like the preceding, but the prolongations of the cells took the stain better and seemed more numerous. The nucleus was not distinct anywhere, being generally of the same color and degree of transparency as the body of the cell. There was a slight increase of neuroglia. The blood vessels showed all the pathological changes noted in the prefrontal area. The pia-arachnoid also showed the same pathological condition already noted.

Sections of the prefrontal area, impregnated with chrome silver showed an increase of neuroglia cells, the fibres of which appeared fairly healthy. There was an increase of capillaries, and varicosities of the smaller vessels appeared like sausages, and were disconnected from the surrounding tissues; they were distended with detritus and round cells as well as with a little dark blood. The neurodendrons in general showed a shrunken body, sometimes seamed from internal shrinkage; they showed few basal and fewer apical dendrites. Yet a few large neurodendrons showed the proper number of dendrites covered with gemmulae. The subpial zone in general was black with deposits of silver and did not show anything distinctly. Sections from the occipital lobe did not differ in any respect from those of the frontal area anteriorly. Sections from the cerebellum did not take the stain well.

*Morbid Histology of Kidney.*—The glomeruli showed a close packing of round cells. A few of them were destroyed and their places occupied by blood clots. Sections of the urinary tubules showed the tube to be patulous in a majority of instances. The lining epithelium was slightly granular and showed some proliferation; a few epithelial casts were seen. Between the tubules were masses of round cells, closely packed. In some places, where the glomerulus was destroyed, Bowman's capsule had thickened greatly and sometimes succeeded in filling the gap. The connective tissue was greatly increased in various places. The walls of the blood vessels were thickened and the nuclei were very numerous in them. Blood extravasations were met with, frequently forcing the tubes apart, and some detritus was mixed with the blood. The hemorrhages were due to the destruction of larger vessels as well as of capillaries.

*Bacteriology.*—Pathogenic staphylococci, aureus and albus, were cultivated from the cerebrospinal and from the pericardial fluid. No other bacteria were found.

The record in the case of H. R. is given in detail for the purpose of calling attention to two points. First, the evidence of imperfect structure, presented by the conformation of the convolutions of the brain and the conspicuous manifestations of degenerative changes in the meninges and cortex. Second, the evidence furnished by the condition of the vegetative organs of corresponding and commensurate changes, degenerative in their nature, and similar

to those found in the nervous system. The correspondence between the mode of death, and the nature of the changes found *post-mortem* in the kidneys is also worthy of note. The morbid anatomical changes in the different organs, noted in the necropsy records given, although they differ widely in some respects, have one condition in common; and that is the constant presence of definite changes in the kidneys; showing that there was impaired capacity for elimination, just as the clinical history furnishes definite and conclusive evidence of intoxication. However, this intoxication was also present in those cases that recovered. Then, too, there was failure in the renal function; but the uranalysis showed that the organic changes in the kidney were not so far advanced; while the history of the patient indicated a lesser degree of brain instability, and greater natural power of resistance. The mental manifestations were practically always the same,—furtive suspicion; unreasoning fear; religiosity and pietism; conditioned in each case by the life experience of the individual, and limited by the boundaries of his mental horizon. In those cases in which there was antecedent mental disturbance, there were present the special sense perversions; the persecutory and depreciatory ideas, characteristic of degeneration. In those cases that recovered, the mental disturbance reappeared in its original form, with the subsidence of the delirium.

Since beginning this paper the histological study of the cortex in the case of T. L., has been completed, and I will refer to it here, because it illustrates so conspicuously the effect of exhaustion in the fulminating cases of acute delirium.

*Morbid Histology of the Brain in the Case of T. L.*—The pre-central area, by Nissl's stain, shows capillary hemorrhages in the pia-arachnoid, which is otherwise marked with exudation of little round cells, and shows much increase of fibrous connective tissue. There is much engorgement of the cortical vessels, and a few extensive capillary hemorrhages. The lymph spaces are much distended in places, causing constriction of blood vessels. The increase of neuroglia cells is in the proportion of 5 to 2 of what is found in health, and is most marked above and below the zone of pyramidal cells. The nerve cells are generally shrunken, and 25 per cent of them are in the second and last stages of degeneration. Spindles are not found anywhere; extrusion of the nucleus is common; granular bodies are the rule, but almost entire loss of body

is also common. The nucleolus is distinct. Impregnated with chrome silver, the same area shows such marked degeneration that no neurodendrons could be found that had not passed the first stage of degeneration. The capillary hemorrhages are well shown, but the capillaries are not so engorged or distorted as the vessels next in size or larger.

In the motor area, by Nissl's stain, a similar condition to that just described was found. There is much proliferation of endothelial cells in the capillaries, and there is some exudation of little round cells in the lymph spaces. The shrinkage of the nerve cells is from side to side mostly. Thickened obliterated arteries of small size are met with. Degenerated pyramidal cells are less numerous than in the prefrontal region. Chrome-silver preparations look worse. In the occipital area, by Nissl's stain, degenerated pyramidal cells are less numerous, and there is less proliferation of endothelium in the capillaries; otherwise the same pathological changes are to be seen. Chrome-silver preparations are not distinguishable from those of the prefrontal area.

When we come to consider that the activities involved in the manifestations of delirium, both mental and physical, are the same in kind as they are in other forms of mental disturbance, it is evident that there is nothing new or peculiar in this mental state; but rather only an exaggeration or excess of what is general, and of what in delirium becomes extreme. Thus, the difference between maniacal excitement and delirium is only in degree; and it is the same of the transition from agitated depression into delirium, whereas in general sepsis from typhoid fever, pneumonia, or other cause, the confusion, constant motion, garrulous incoherence, furor, or muttering, are but exaggerations of the restlessness, peevish irritability, and loquacity, which mark the ordinary involvement of the nervous system in these disease conditions. The mental activity is the interpretation, and the motor disturbance the synchronous expression of the reaction of the organism to the imperious stimuli following the multitude of unrelated impulses liberated in consciousness by the incoordinated impressions coming through the special senses.

Even in the most robust individual, if the existence and persistence of such conditions were possible, exhaustion would rapidly supervene; as it often does under the influence of violent emotion. Therefore, it is not surprising that, when vitality is impaired, and

there is loss of sleep and imperfect nutrition, exhaustion should result more rapidly and from slighter causes. In ordinary mental disturbance, and even in maniacal excitement, there are periods of rest; and nutrition is not impaired nor elimination interfered with. Consequently, there is merely perversion of the ordinary cerebral activities; and the amount of energy expended is not in excess of the capacity of the individual.

Now as to the physical aspect of this mental state. In normal cerebral functioning there is a cycle, made up of a period of more or less intense activity, a period of rest and a period of latency. And so far as we can judge from the confusion which results from excessive effort in one direction, or the attempt to carry on numerous activities at once, all of the functional elements of the brain structure are not engaged in the generation of any one form of activity at the same time. Besides, there are certain elements which seem to stand in psychic relation with the vegetative organs and functions. These two conditions of activity offer an explanation of the fact, that, in cases of insanity, in which death occurs, and even in cases of extreme dementia, in studying serial sections of the cortex in the prefrontal and parietal areas, it will be found that the number of elements involved in the degenerative change is relatively small. On the other hand, in the cases of patients dying in delirium, the number of elements involved is relatively great, and the degree of involvement more extreme. Besides, the change is destructive rather than degenerative.

In order to determine the significance of these differences, and the extent of the destruction possible, we undertook a series of experiments, using rats, both on account of their resistive power, and because they were plentiful. After establishing a normal standard, as shown in the photographs, the following conditions were developed. A rat was put into the whirligig of a squirrel cage and kept in motion until partially exhausted. He was then killed and the cortex of the brain studied. Another rat was then put through the same process for a longer period, but with intervals of rest. Finally, with others, we supplied as nearly as possible the conditions present in acute delirium,—insomnia, starvation, and constant motion, death resulting from exhaustion. We called the conditions produced the 1st, 2d and 3d stages of fatigue. The results of these experiments are shown in the accompanying photographs, and along with them are also pictures of the changes found



FIG. 1.—Rat. Normal. Nissl. Prefrontal.  
 $\frac{1}{4}$  in. O. Healthy looking large pyramidal  
cells.

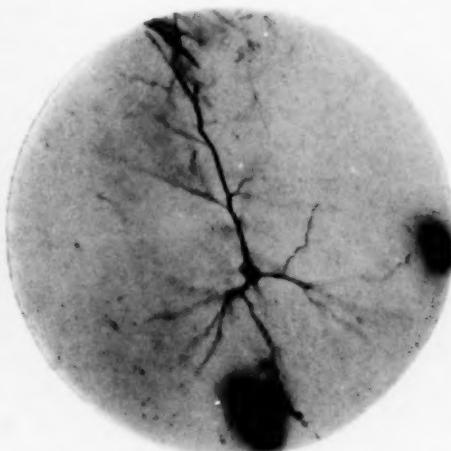


FIG. 2.—Rat. Normal. Prefrontal. Duerig.  
 $\frac{1}{4}$  in. O. Healthy neurodendron.



FIG. 3.—Rat. Fatigue. Prefrontal. Nissl.  
 $\frac{1}{4}$  in. O. Pia-arachnoid. Capillary hemor-  
rhage and leucocyte exudation.



FIG. 4.—Rat. Pia-arachnoid in prefrontal  
region.  $\frac{1}{4}$  in. O. Capillary hemorrhages, and  
chronic connective tissue increase. Delir-  
ium.



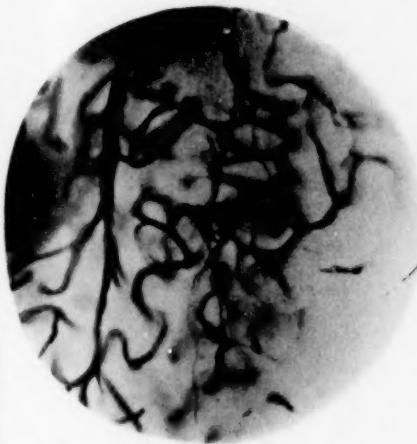


FIG. 5.—Rat. Fatigue. Prefrontal. Duerig.  
 $\frac{1}{4}$  in. O. Engorged vessels.

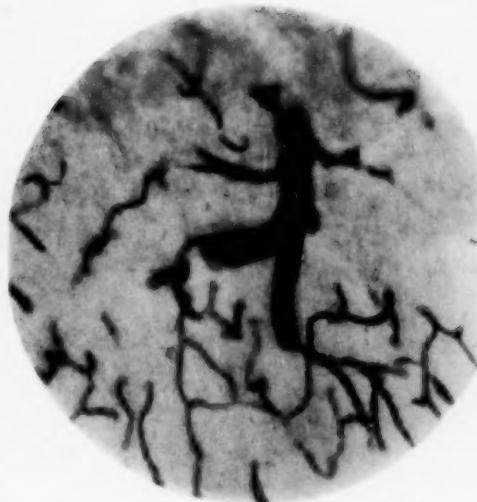


FIG. 6.—A, K. Prefrontal. Duerig.  $\frac{1}{4}$  in.  
O. Engorged vessels. Delirium.



FIG. 7.—Rat. Fatigue. Nissl.  $\frac{1}{4}$  in. O. A  
large pyramidal cell in first stage fatigue.  
Chromolysis.

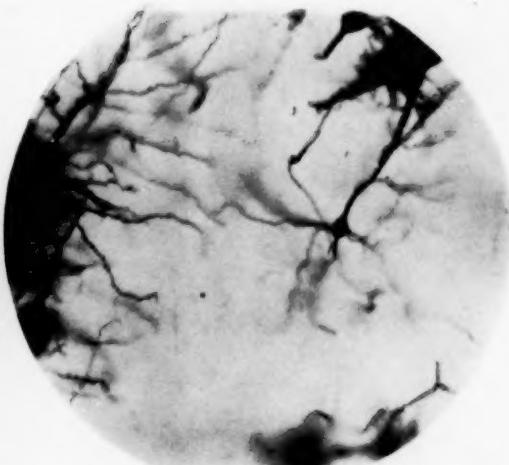


FIG. 8.—Rat. Fatigue. Prefrontal. Duerig.  
 $\frac{1}{4}$  in. O. Neurodendron in first stage fatigue.  
Part of apical and basal dendrites lost.





FIG. 9.—Rat. Fatigue. Prefrontal. Nissl.  
 $\frac{1}{4}$  in. O. Large pyramidal cells in second stage  
fatigue. Chromatolysis and obliteration of  
nuclear outline.

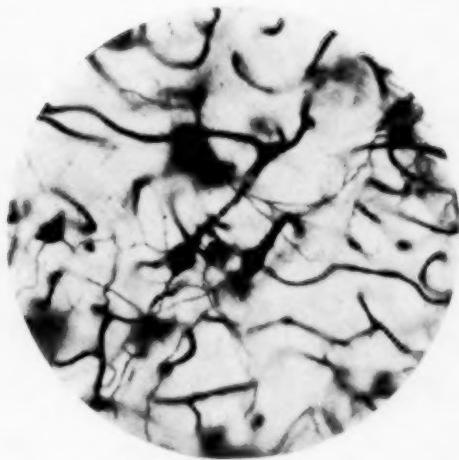


FIG. 10.—Rat. Fatigue. Prefrontal. Duerig.  
 $\frac{1}{4}$  in. O. Two neurodendrons in second stage  
of fatigue. Many dendrites have dropped out.

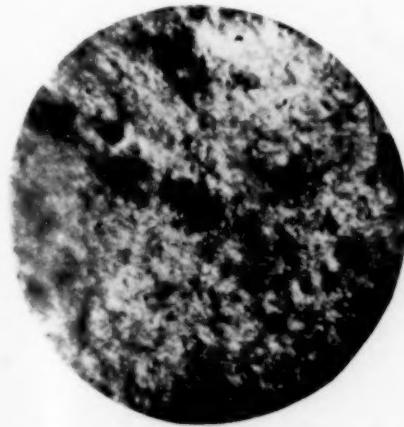


FIG. 11.—Rat. Fatigue. Prefrontal. Nissl.  
 $\frac{1}{4}$  in. O. Large pyramidal cell in last stage  
fatigue. Spindles and centrosome lost. Nu-  
cleolus alone distinct.

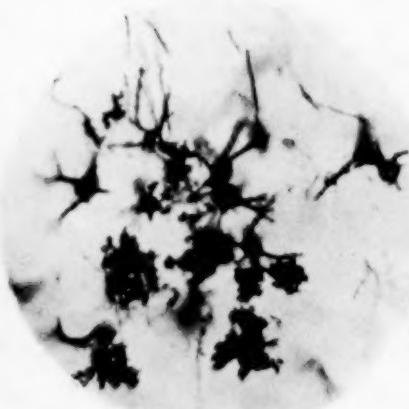


FIG. 12.—Rat. Fatigue. Prefrontal. Duerig.  
 $\frac{1}{4}$  in. O. Several neurodendrons in last  
stage fatigue. Dendrites nearly all lost.  
Much increase of neuroglia present.





FIG. 13.—L. Prefrontal. Nissl.  $\frac{1}{8}$  in. O.  
Large Pyramidal cells in first stage degenera-  
tion. Chromatolysis. Slight Loss of nuclear  
outline. Delirium.



FIG. 14.—L. Prefrontal. Duerig.  $\frac{1}{4}$  in. O.  
Neurodendron in last stage degeneration.  
Dendrites mostly lost. Much increase of neu-  
rogliia cells. Delirium.

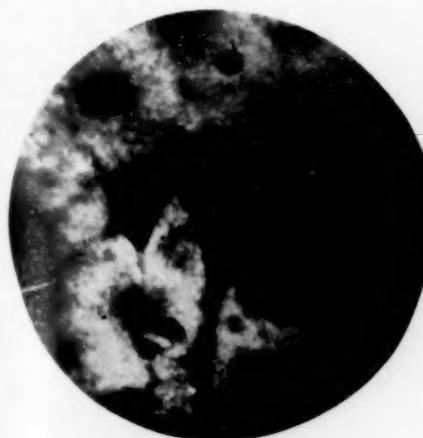


FIG. 15.—D. Motor Area. Nissl.  $\frac{1}{8}$  in. O.  
Large pyramidal cell in first stage degenera-  
tion. Chromatolysis. Delirium.

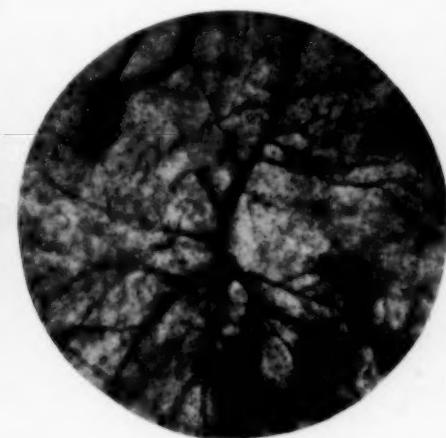


FIG. 16.—D. Motor area. Duerig.  $\frac{1}{4}$  in. O.  
Neurodendron in first stage degeneration—  
very nearly normal. Delirium.



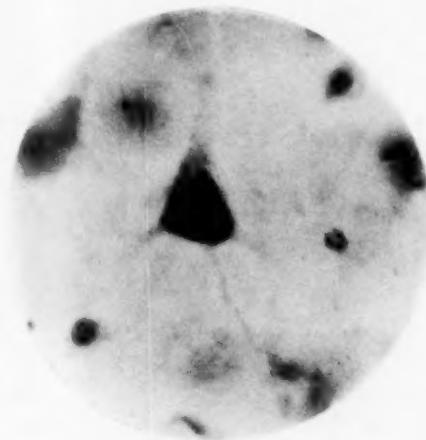


FIG. 17.—Rg. Prefrontal. Nissl.  $\frac{1}{8}$  in. O.  
Second stage of degeneration. Chromatolysis.

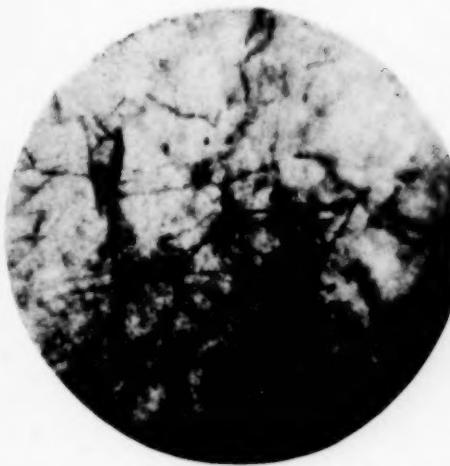


FIG. 18.—D. Prefrontal. Duerig.  $\frac{1}{4}$  in. O.  
Neurodendron in second stage degeneration.  
Some basal and most of the apical dendrites  
are lost. Delirium.

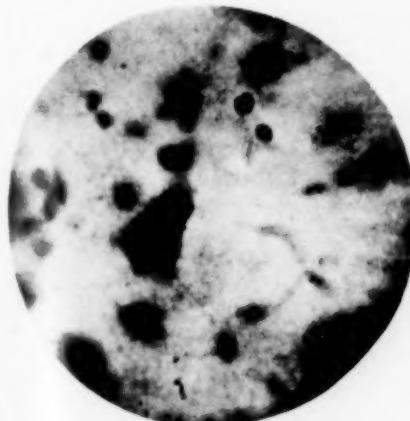


FIG. 19.—A. K. Motor area. Nissl.  $\frac{1}{8}$  in. O.  
Large pyramidal cell in second stage of de-  
generation. Chromatolysis and loss of nuclear  
outlines. Delirium.

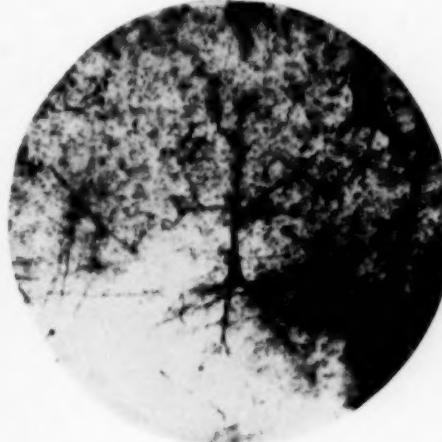


FIG. 20.—D. Motor area. Duerig.  $\frac{1}{4}$  in. O.  
Neurodendron in second stage degeneration.  
Much denudation of dendrites present. De-  
lirium.



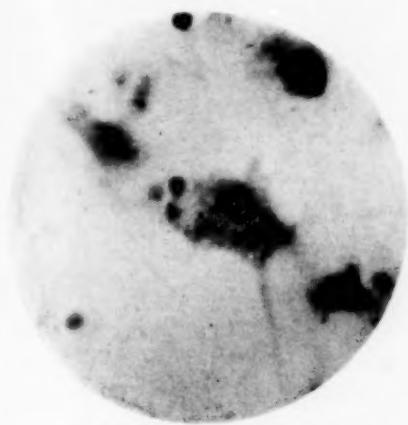


FIG. 21.—Rg. Prefrontal. Nissl.  $\frac{1}{2}$  in. O. Large pyramidal cell in last stage degeneration. Neuroglia invasion well shown. Delirium.

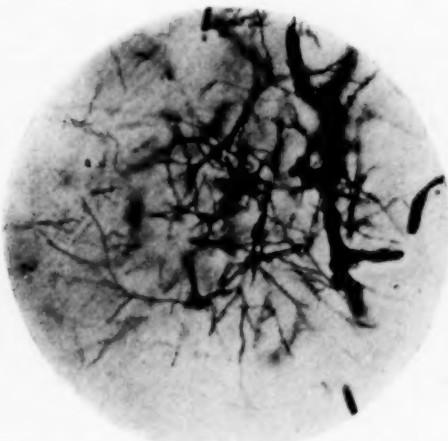


FIG. 22.—Wr. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. 3 or 4 neurodendrons in last stage degeneration. Dendrites nearly all absent. Engorged vessels also shown. Delirium.

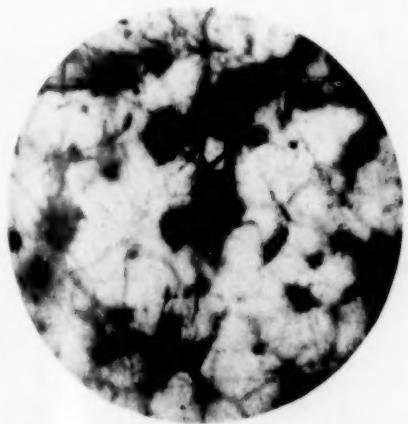


FIG. 23.—D. Prefrontal. Duerig.  $\frac{1}{4}$  in. O. Neurodendron in first stage degeneration. Basal dendrites mostly lost. Delirium.

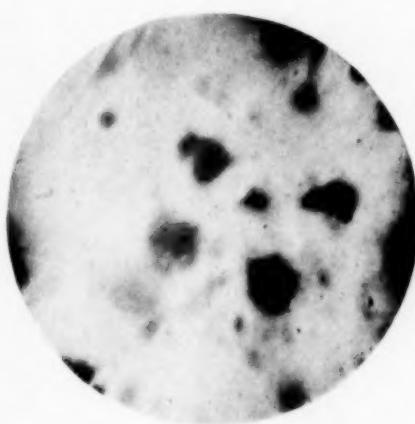
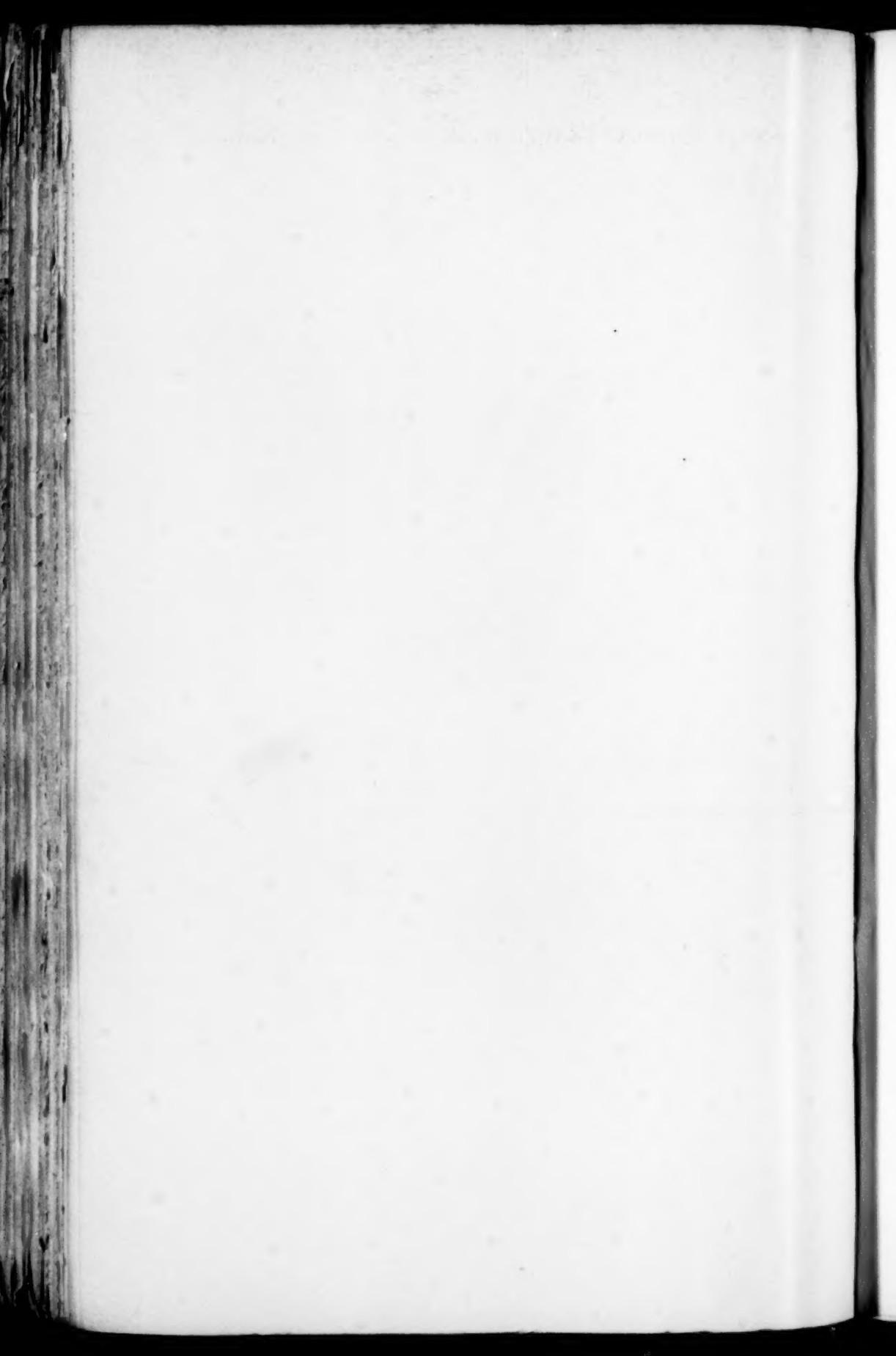


FIG. 24.—A. K. Motor. Nissl.  $\frac{1}{2}$  in. O. Several large pyramidal cells in last stage degeneration. All degenerations lost between corpus, nucleus and nucleolus.



in the brain in cases of insanity dying in acute delirium. It will be seen that the changes resulting from the experimentally produced conditions, are exactly the same as those which have taken place in the human brain as the result of a similar exhaustion from disease. These changes in the cortical cell, in their varying degrees, illustrate the effects of exhaustion from overuse; and, so far as we can determine, are probably only exaggerations of the changes resulting from ordinary fatigue. Therefore, they are only extreme manifestations of the changes which presumably take place in the cell as the result of habitual activities. So far as we know anything about the effect of exhaustion upon the structure of an organ, there is at first blood stasis, then edema from lymph stasis; and finally disintegration of the structure of the cell. How far this disintegration may be the direct result of overwork, and how much it may be contributed to by intoxication, can only be inferred; but it is probable that one supplements the other, because, in the normal individual, enormous and persistent muscular and mental activity, without food or sleep, are compatible with retention of mental capacity, and absence of aberration. The histological changes in the cortex seem to be an indication of the degree of morbid cerebral activity to which they are consecutive. In an unstable brain this morbid activity may result from the intoxication of uremia, or that accompanying bacterial infection; and these changes will vary in degree, not on account of the differences in these different kinds of intoxication; but always in direct proportion with the degree of instability, and the amount of mental and motor activity. Also, the greater the degree of instability in the nervous system, the easier the delirium is set up, and the more violent it is. As further proof of this contention we have the fact of the similarity of the histological changes in the brain in the delirium of general sepsis, uremia, alcoholism, and the so-called delirious mania. Even in the inflammatory cases, where there is an acute encephalitis or peri-encephalitis, the character of the changes in the brain cells does not differ, although their morphology may. The intoxication from the local sepsis is more direct; and, besides, the changes in the membranes and the blood supply interfere more seriously with nutrition and elimination, and as a result the process is more intense. But the disintegration, in any case, will be the result of the overwork and excessive activity of the cell (the cytobiosis) and not the cause of it.



## RECOGNITION OF THE INSANE IN PENAL INSTITUTIONS A FACTOR IN DIMINISHING CRIME.<sup>1</sup>

BY FRANK W. ROBERTSON, M. D.,

*General Superintendent New York State Reformatory, Elmira, N. Y.*

It is my wish to direct the attention of the members of this Association to the fact that better protection is afforded to society as greater care is exercised in the recognition and treatment of the various forms of insanity existing among criminals confined in penal institutions.

For many years, very little attention was given to the practice of psychiatry, in prisons, and it is only within a comparatively short time that organized effort has been made to care for the criminal insane. Previous to the year 1859, this class of prisoners was cared for in the Asylum for the Insane, at Utica, N. Y., from which institution they were subsequently transferred to the Matteawan State Hospital, at Fishkill Landing, N. Y.

The first hospital opened for the especial care and treatment of the criminal insane, in the United States, was authorized by an act of the New York State Legislature, passed in April, 1855, providing for a commission to be appointed by the Governor; and this commission was directed to make separate provision for the custody of insane prisoners. In due time the necessary funds were appropriated and in February, 1859, an asylum for this purpose was completed and opened at Auburn, N. Y.

In November, 1900, the Dannemora State Hospital for the Criminal Insane was opened for patients; this hospital is located near the Clinton state prison, Dannemora, N. Y.

There are at the present time, especial asylums for the care of insane prisoners, in the States of New York, Massachusetts, Illinois Michigan, and North Carolina. In the following States a depart-

<sup>1</sup> Read before the 59th Annual Meeting of the American Medico-Psychological Association, at Washington, D. C., May 12-15, 1903.

ment for the criminal insane is included within the walls of the prisons: Iowa, Ohio, Maine and Connecticut. So far as I have been able to ascertain there also exist especial asylums in England, Scotland, and Ireland, and at Kingston, Canada. There are likewise especial asylums in Saxony, Baden and Hungary. Prussia maintains, at the Moabite prison, an annex for insane prisoners. France provides special quarters for male insane prisoners, the females being sent to departmental asylums. Belgium is now erecting a new separate asylum. In 1895, Norway established a small asylum for this purpose, and Italy maintains three especial asylums, accommodating about six hundred inmates.

From the above it will be seen that it is only within the last fifty years that any decided attempt has been made to remove the insane from the criminal population and afford them the care and treatment to which their mental condition entitles them. With the establishment of departments in prisons, and the building of especial institutions for the treatment of the criminal insane it became possible to humanely and scientifically care for this unfortunate class. But as the number of these institutions has increased, and greater opportunity for advantageous treatment thus been made possible, it seems to me that we have neglected one very important detail and omitted a necessary factor in securing to the insane criminal the treatment which he should receive, and the protection to society which would result from his being incarcerated in an asylum where he would be detained until he recovered; whereas if he remained in the prison, he would be discharged at the expiration of his sentence, without regard to his mental condition. We have failed to provide skilled physicians whose duty it shall be to visit the penal institutions for the purpose of discovering the insane. Of course there are a few institutions having physicians in charge of their medical departments who have had previous experience with the insane, and these institutions will usually be found to have transferred a larger number of insane criminals to hospitals for treatment than prisons not so favored. In many penal institutions no decided attempt is made to separate the insane from the general population; the management even going so far as to consider most cases acting in an irrational manner as malingerers. By careful observation the experienced alienist will usually be able to discriminate between the true and the false; and it has been my personal experience that most of those who have been

characterized, by guards and keepers, as being malingerers, have proven to be true cases of mental alienation and, in instances where suitable provision has been made for them, should be treated in especial hospitals.

In some instances, where institutions have made a careful analysis of their populations, and a consequent transfer of defective cases to State hospitals has taken place, well meaning but misguided enthusiasts, without at all understanding the existing conditions, have criticised the management of the institutions, alleging that the necessity for transfer was more likely due to defective methods of discipline than to the recognition of really insane subjects. Such criticism naturally tends toward the engendering of a feeling of extreme caution on the part of the governing powers of prisons, that transfers shall be made only in very marked and advanced cases whose condition has become patent to all.

It should be our duty as medical men to seek to enlighten the community regarding the insane and to inform them of the prevalence of insanity and degeneracy among the criminal classes; and the transference of considerable numbers of insane prisoners to suitable hospitals should merit approval rather than censure as showing that the inmates have been studied as individuals and not as a class.

We believe that the scope of this work should be very broad, including all forms of mental disease, and that imbeciles, epileptics and paranoiacs should all be cared for in hospitals especially designed for the treatment of this class. Such investigations as we have been able to make in regard to this subject would appear to confirm the opinion that especial departments for the insane, as connected with the prison proper, have not met with success; and it is the writer's opinion that these hospitals should be entirely separate, and preferably placed at some distance from the prisons in order that the general atmosphere shall be that of a hospital, and not that of a prison.

While the percentages of recoveries and marked improvements given out by institutions which treat this class are not so large as we could wish, owing no doubt to the fact that nearly all the criminal insane come from a markedly degenerate class, with a bad heredity, still there are a considerable number who receive some benefit, and not a few recover after treatment who, were

they to be retained within prisons without the skilful treatment which the physicians of the hospital are able to afford, would eventually develop into chronic cases.

By reason of the fact that if their condition is suspected, they cannot consistently be punished for their misdemeanors, the presence in penal institutions of these insane and degenerate classes offers a serious obstacle to the preservation of good discipline, an embarrassment to the disciplinarian and a constantly disturbing element in the matter of the progress of other inmates who may be trying to get along well and make good records. It is the writer's belief, founded upon experience in the reformatory, that the great bulk of so-called incorrigible prisoners, variously estimated at from 10 per cent to 20 per cent of the total population, are more or less mentally affected, and hence have a limited responsibility. The writer can safely say that the discipline in the reformatory at Elmira has been greatly improved by a careful examination of this class and a subsequent transfer to the State hospital at Dannemora, of those found to be suffering from mental disease, and that if there existed an institution to which the imbeciles, idiots, epileptics, and degenerates could be transferred, the problem of prison discipline would be considerably simplified. Of course we do not mean to say that all incorrigible prisoners are of necessity suffering from mental disease, or degeneration, but that this is true of a considerable number of them there can be little doubt.

These degenerate classes should not be retained in a prison, to be eventually turned again into the community at large, at the expiration of their sentences; but provision should be made to secure to each prison the services of a competent alienist; or if this be found not practicable, all the penal institutions in a State could periodically be visited by an alienist whose duty it should be to systematically study the population, and recognize and cause to be transferred to especial institutions those belonging to the markedly degenerate classes above mentioned. In this way society would be protected from the possibility of having the insane criminal returned to its midst; for of course we assume that when he is transferred to a hospital it is understood that he will be there retained until it is considered safe for him to be at large. We are constantly hearing of the recidivist criminal, who has been many

times sentenced to prison—in some instances perhaps as many as eight times. I am positive that a careful examination of this class would result in the discovery that quite a number of them are lunatics, or are so defective that they should be transferred to an asylum to be there permanently retained.

By this means also, much expense and loss, consequent upon their depredations during their short periods of freedom between convictions, would be prevented, as would also the costs entailed by their apprehension, trial, and transportation to prison, for each new crime committed. And another important advantage which would be secured by this permanent retention would be that it would prevent their further increase in numbers by propagation of their species.

In this connection I trust it will not be out of place to call attention to the need which exists for a most careful medical analysis and examination, by competent alienists, of persons who come before the courts charged with crime; thus insuring to those who are especially defective a proper recognition of their condition. If this were done those manifesting criminal tendencies who were found to be suffering from mental disease could be committed directly to institutions designed especially for their care and treatment. The writer has in mind the case of J. W., aged 24; born in the United States; temperate, no history of syphilis; common school education; lived in a small village until he enlisted in the army and went to Manila, in 1899. While in the Philippines he had an attack of malaria; and he has also stated that he suffered from an attack of insanity of short duration. His mother stated that after his discharge from the army he suffered from "fits." He was discharged from the hospital in Manila and returned to the United States in the summer of 1901. In April, 1902, he was arrested for burglary; was confined in jail for five months, and was then tried, pleaded guilty and was sentenced to Elmira. During the trial no symptoms of insanity were noticed by the jailors; but upon his admission to the reformatory, on October 28, 1902, it was noticed that he acted strangely. The judge who sentenced him was communicated with and, upon his request, the prisoner was returned for re-sentence. He was then transferred to the Willard State Hospital for treatment and, in December, 1902, he was transferred to the Matteawan State Hospital. Upon admis-

sion to the Willard State Hospital it was found that he was confused, talked in a rambling manner; orientation was defective both as to time and place; he believed he was in Manila; did not remember returning from Manila; heard voices telling him to go back to his regiment; said he saw his brother in his room "last night." While he was in the Willard State Hospital he remained confused and depressed; at one time was suicidal; heard voices talking about him and calling him vile names; at times was restless and uneasy. I believe he is still under treatment at the Matteawan State Hospital.

A number of cases similar to the above have come to the writer's notice during the past four years.

To summarize: How may the recognition of the insane in penal institutions best be made a factor in the diminution of crime? The writer will say: First, by the establishment, in every State, of separate and especial institutions for the insane, and for defectives who exhibit criminal tendencies; the populations of such institutions to be held in custody until such time as a competent medical tribunal shall determine that they are fit to be returned to society. Second, by examination by competent alienists, prior to sentence by the court, of those accused of crime; the report of the physician to be laid before the court to assist in reaching a proper determination of the case. Third, the appointment upon the staffs of all penal institutions of competent alienists, whose duty it shall be to recognize and secure the transfer to hospitals of those so markedly defective as to require such treatment. If it be not practicable to place an alienist in each institution, then the writer would suggest that an alienist be appointed in each State, whose duty it shall be to visit its penal institutions. The warden, or superintendent of each prison should keep a careful record of each prisoner known to have exhibited any mental idiosyncracy; this information to be furnished the alienist upon each visit.

In order to adequately protect society against the criminal we must rid ourselves of the old idea that the punishment must fit the crime, and by studying each prisoner, be able to single out those whose defectiveness is such that they should be treated in especial hospitals for the insane criminal, as distinguished from those who may be treated upon the old lines, in our State prisons, or those believed to be susceptible of improvement by means of the more modern treatment afforded by the reformatory.

THE FLUCTUATION OF INSANITY IN CONNECTICUT  
AS SHOWN BY A STUDY OF CASES ADMITTED  
TO THE CONNECTICUT HOSPITAL FOR INSANE.

By ROLLIN H. BURR, M. S.

It is the purpose of the writer of this paper to show, largely by statistics, the increase or decrease of the insane, native and foreign, in Connecticut. The statistics cover a period of thirty-two years, beginning in 1868 and ending January, 1901. Such comparisons with the census reports and social statistics have been drawn as will enable the reader to see the real increase or decrease of the insane among the native and foreign nationalities.

All statistics bearing upon the insane in recent years bear witness of large increases of insanity. Our institutions are filled with the mentally diseased. It must be remembered, however, that these large numbers are the accumulation of years in the institutions. Few aliens are left in the homes, now that the beneficial results of institution treatment are known. Insanity is studied in the light of science and the demarkation of the insane from the sane is much more closely drawn. The value of institution treatment has been raised to a much higher standard, and all recognize the benefit of its cleanliness, regular habits, etc. Formerly the insane, being left at home, largely cared for themselves and thus received no care. The period of life was much shorter than at present and suicide of the insane much more frequent. There are reasons why there seemed to be fewer insane than at present, and conversely why the statistics of the insane show such large increases.

Formerly, there was little accumulation of the insane, but now the halls of our larger institutions are filled. It is surprising to see such large numbers of aged men and women, some of whom have been in the institution for twenty or thirty years. The prolongation of life and the larger recognition of the benefits

of institution treatment are fundamental and self-evident reasons why our hospitals are congested and why more and larger ones are needed.

The usual method of obtaining the increase or decrease of insanity is to compare the number within the institutions for the insane with the number in the general population from which the insane are taken. We have seen, however, if the above statements are correct, that this does not throw a true light on the relative proportions of the two. All this method can show is the ratio of the "accumulated" insane to the general population. From these ratios it is thought that a measure of the increase or decrease of insanity is obtained. It is manifest, however, that this is not a good method, inasmuch as it considers all the insane at a given moment and does not consider those who may be at home by virtue of remissions, etc.

Another method, used largely by statisticians, is to compare the number of admissions to the institutions during a given year with the admissions of the previous and following years. At first sight this method is attractive. However, it does not eliminate those admissions which are duplicated or multiplied three, four or more times. The admissions or readmissions of many cases extend over a single year or many years and are confined to a single institution or to several. The second method, therefore, is open to criticism because it does not consider in its statistics the several admissions of a single patient as one.

There is another method which may be used in getting at the increase or decrease of insanity. This consists in laboriously going over the histories of the insane, and casting out all readmissions. In this way, the first admission being used, the cases are assigned to those periods of time when the patient was first attacked. A comparison of the numbers thus obtained for a given period, with the approximate population of the period, will give the ratio of the insane to the same, or the "relative proneness of people to become insane." This has been the method adopted by the writer.

Nearly eight thousand cases have been studied, being the total number of different patients admitted from the State of Connecticut to its insane hospital. The ratio of the insane to the population has been determined by general nativity and by nationality. The

study also includes the ratios of the different nationalities by towns and cities and by counties. Such a study was possible because there have been such a large proportion of the States' insane entering the institution at Middletown. Exact figures cannot be given, but it has been computed through census reports and personal letters from the Hartford institution that approximately 83-87% of the insane have entered the State institution at some time during the course of their mental disease. The figures given in this paper represent only the insane who have entered the Middletown institution. The factor of correction which may be used approximates 15%, being somewhat higher in the early period, and a little lower in the later.

It is well to note at this point that the study includes approximately all the foreign insane. The admissions from the very well-to-do classes have been few.

The questions studied and summarized in this paper include the following: Admissions of individual patients from towns and cities by general nativity, by decades and for total period 1868-1901; admissions from towns and cities by decades and for entire period compared with the population, also admissions by general nativity compared with the population; nationalities of the insane from towns and cities by decades and for total period compared with the native and foreign population; relative increase or decrease of nationalities among the insane during each decade; nationalities of insane by periods and by counties of the State compared with the population; and the nativity of the insane by periods for the entire State and for the two largest cities compared with the population by nativity.

The method of obtaining the statistics was as follows: (1) No patient is included but once in any set of tables. The number of admissions to the hospital since its founding in 1868 to the year 1901 was over nine thousand and four hundred, the actual number of individuals admitted was approximately seven thousand six hundred and fifty-seven. (2) Wherever comparisons are made with the census, the census figures for the period immediately following the decade is taken as a measure of the approximate population. (3) The first period is not a decade but covers a period of twelve years. Few insane were entered in the first two years and therefore the error is slight. (4) The division between towns

and cities is somewhat artificial. With the exception of Manchester, Naugatuck, Willimantic and Torrington, all places of over 8,000 are classified with the cities. These places, in fact, have increased so rapidly in population during the last decade, that it is only for a few years that they have exceeded the 8,000 limit. On the other hand, Derby, Rockville, Norwalk and Putnam having long been chartered as cities and being but slightly below the 8,000 limit are classified with the cities.

#### RATIO OF ADMISSION TO THE TOTAL POPULATION.

The first to draw our attention in this statistical study is the ratio of admissions of different patients to the whole population. Mr Dana states<sup>1</sup> that in 1880 there were from 89,000 to 96,000 in the United States or 1 insane to every 570 or 520 people. In Massachusetts he gives the figures as 1 to every 336 and for Connecticut 1 to every 355. Mr. F. Pratt gives<sup>2</sup> the ratio of the insane to population in the United States for the year 1880 as 1 insane to every 662 inhabitants (native) and 1 to every 250 (foreign). He assigns the cause of this great increase in insanity as being due to the intense life, immigration and intermarriage among foreign and native whites. Further, the hospital reports show the increase of insanity for the different periods as follows: In 1870, one insane to every 2,346 inhabitants; 1880, one to every 1,216; 1890, one to every 545; and in 1900, one to every 444 inhabitants. Finally, the ratio of the insane to population as given by the census reports follows: 1880, one to every 1,233 inhabitants; 1890, one to every 555; 1900, one to every —.<sup>3</sup>

Two methods, therefore, have been used in getting at the increase of insanity, one by the use of the census and the other by the use of hospital reports. Which method has been found to be the more reliable, cannot be discussed here. The discrepancy between the two sets of figures may be noted. Mr. Dana's figures are quite at variance with those given by the hospital and census reports. The ratios found by the writer are as follows: 1st period (1868-1880) 1 to 438; 2nd period (1880-1890) 1 to 281; 3rd period

<sup>1</sup> Needs of the Insane.

<sup>2</sup> Increase of Insanity in the United States.

<sup>3</sup> Report of Insanity not yet published.

(1890-1900) 1 to 255. These figures show a much larger percentage of insane than those given above, but the ratio of increase of insanity is very much smaller. The admissions of different patients for the consecutive periods are 1421, 2886 and 3550, making a total of 7657. Were the admissions of patients entered at the Hartford institution included, the ratio of increase would doubtless be still lower and the percentage of insane higher.

#### RATIO OF INCREASE OF INSANITY.

The above ratios of the insane, aside from showing a great variation in the relative numbers of the insane by the two methods, point out the great variation in the increase of insanity. The ratio of increase, as shown by the hospital reports, is nearly 100% between 1870 and 1880, approximately 12.5% between 1880 and 1890 and 25% between 1890 and 1900. The percentage of increase is for the second over the first period 60 and for the third over the second 10. The number of insane, therefore, when the readmissions are excluded, is apparently only about one-half of what the hospital and census reports show.

#### RATIO OF INSANE BY GENERAL NATIVITY.

The next step is to show from what class of people, native or foreign, this increase comes. We have noted that Pratt found the native insane, in 1880, were in the ratio of 1 to 662 to the population, and the foreign 1 to 250. He also gives the increase of foreign insane since 1850 which he states is very large. Edwin A. Down, M. D., in a contribution to the Yale Medical Journal, states that in 1880 the foreign insane was 29, and in 1890 39% of the insane of Connecticut. In our statistics in the first period there was one native insane to every 544 native inhabitants, foreign 1 to 251 foreign inhabitants; second period, native 1 to 344, foreign 1 to 175; third period, native 1 to 312, foreign 1 to 169. These figures not only show the larger preponderance of foreign over native insane, but show also that the larger part of the increase of the insane is from the foreign element. Of the different patients admitted in the first period, 63.7% were native, 36.9% foreign; second period, 60.8% native, 39.2% foreign; third period, 60.4% native and 39.6% foreign; or for the whole period there were 61.2%

native admissions and 38.8% foreign admissions. The following figures represent the number, and proportion of insane to population by general nativity:

	No. Insane.		Proportion to sane pop.	
	Native.	Foreign.	Native.	Foreign.
1st period .....	905	516	544	251
2nd " .....	1635	1051	344	175
3rd " .....	2146	1404	312	169

#### PROPORTION OF INSANE FROM TOWNS AND CITIES.

The relative proportion of the insane from the towns and cities is next in logical order. Edward Toulouse maintains \* that the city is much more highly productive of insanity than the country, and that alcoholism and general paresis explain the wide variation. The great increase of the city over the country in insanity he attributes to business pressure, competition, and the effects of alcohol and vice which are not so prominent in the country. Guislau observes the same to be true in Belgium, where, in 1852, there was 1 insane to every 476 inhabitants in the cities and 1 to 1368 in the country. The figures which we have obtained, showing the increase of the insane of the city over the country are as follows:

	No. Insane.		Proportion to sane pop.	
	Towns.	Cities.	Towns.	Cities.
1st period .....	659	691	516	409
2nd " .....	1109	1431	330	265
3rd " .....	1302	1961	303	261

This table is not only of interest in comparing the relative numbers of insane from the cities and towns, but it shows the large proportionate increase from the country towns in the last period and the comparatively slight increase of the insane from the cities. From this we are led to infer that the city has been much more largely productive of insanity than the country, but that the number of insane from the country is increasing to nearly the same proportion as from the cities. It has been noted above that there has been a proportionately large number of insane from the cities, and that a large part of the insane are of foreign birth. Our first thought would be, therefore, that there is probably a direct relation between the two. This relation is expressed in the following table:

\* *Les Causes de La Folie.*

	Towns.		Cities.	
	Insane, Native. Per Cent.	Foreign. Per Cent.	Insane, Native. Per Cent.	Foreign. Per Cent.
1st period .....	70.4	29.6	59.0	40.9
2nd " .....	69.1	30.9	55.0	45.0
3rd " .....	68.6	31.3	55.8	44.8
Total .....	69.2	30.8	55.8	44.2

According to this table, the foreign element appears to be largely a product of the city, but there is, however, an increasing number of insane coming from the country. This increasing number from the country seems to go hand in hand with the increase in the country's foreign element. There is, then, a relation between the large number of insane from the cities and the large proportion of foreign element in them.

#### RELATIVE PROPORTION OF INSANE BY NATIONALITY.

It is now our purpose to find out from what nationalities the larger part of the insane come. To this end a comparison has been made of the nationalities of the insane from the whole state and the population by nationality. In the several periods there was one insane to the following number of the population of the same nationality :

Native	Irish	English	French	German	Russian	Swedes	Italian
1st period...544	200	336	354	268	...	521	293
2d period...344	117	187	292	222	1463	316	480
3d period...307	174	312	303	180	326	329	868

A glance at this table reveals that there has been an increase in insanity in nearly every nationality except the Italian, which show a decided falling off. It further shows that the largest increases have been among the Germans, Irish and English. It will be noted also that the Irish have the highest ratio of insanity and that the Germans and French are next. The high ratio of the English in the second period may be noted, but no explanation can be given for the sudden rise. Further, it is worth noting that the middle period shows the highest ratio in most of the nationalities. The percentage of the various nationalities within and without the institution is also of interest and strikingly shows the large proportion of the Irish insane.

The following tables are inserted to show the comparison of the

different nationalities by percentages. The first gives the summary of the whole period, the second, the percentage in the different periods.

I. Percentages of different nationalities in institutions and in population:

	Insane.	Pop.
Irish .....	57.25	39.06
English .....	9.45	10.5
French .....	.70	1.0
German .....	13.00	14.2
Russian .....	1.75	3.1
Swede .....	5.25	5.5
Italian .....	1.95	3.3
Others .....	10.55	22.7

II. Percentage of the total number of the different nationalities in the institution and in population during the given periods:

	Periods					
	I.		II.		III.	
	Insane.	Pop.	Insane.	Pop.	Insane.	Pop.
Irish .....	21.2	32.2	38.6	35.4	40.1	32.3
English .....	17.1	26.8	39.8	35.7	43.0	37.4
French .....	14.3	19.4	31.3	36.8	49.9	43.6
German .....	15.5	19.8	34.2	39.2	50.1	40.0
Russian .....	1.2	.6	5.0	33.7	93.7	65.8
Swede .....	2.3	6.8	26.4	39.6	71.5	53.3
Italian .....	5.3	4.8	19.7	32.2	74.9	62.8
Others .....	12.4	...	27.5	...	60.0	...

These tables not only show the great increase in some of the nationalities, but show the "movement" of the foreign insane during the three periods. Whereas the largest percentage of Irish *population* was shown in the middle period, the largest percentage of *insane* was in the last period. Again, it will be noted that the Germans show a very large percentage of insanity in the last decade, having a ratio for the period much larger than that of the population. These facts, though differing quite widely in their proportions are fairly in accord with those of other observers. Toulouse, to whom we have already referred, states that the proportion of insane to population in England is 1 to 363, in France 1 to 440, in Germany 1 to 385, in Russia 1 to 447 and in Sweden 1 to 998. Kollman gives<sup>\*</sup> the proportion of insane to sane

\* Zeitschrift für Psychiatrie X L Band, 1884, page 481.

population as follows: England and Wales 1 to 574, Ireland 1 to 554, Scotland 1 to 495, Sweden 1 to 567 and in France 1 to 683. Further, H. P. Stearns, M. D.,<sup>\*</sup> gives the proportion in England as 1 to 357 in 1880, pointing out that there has been both an absolute and a relative increase of insanity among all nationalities. The difference between the proportion of the insane from the various nationalities as determined by the authors quoted and those found by the writer is due probably to a difference in the determinative factors in the production of insanity in the several countries. Thus, difficult acclimation has been assigned as a cause of insanity, and this may be the disturbing factor with a large part of our foreign insane. It is also granted that many of our foreign element are not the hardiest of their nation, but are from the poorer and diseased classes. For these reasons, therefore, we would expect a much larger percentage of insane among the foreigners than their native institutions show.

#### NATIONALITIES OF INSANE BY TOWNS AND CITIES.

Having studied the general movement of insanity among the various nationalities let us turn our attention to the nationalities of the insane from the towns and cities as separate classes. The comparison cannot be made as closely as is desirable because the census reports do not give the population of all our cities by nativity. The general facts which have been deduced are as follows: The proportion of insane among the Irish is more than double that of any other nationality. In 1880 the proportion of Irish was 11.8% of the State's population, the percentage of insane was 20.6% from the towns, and 29.4 from the cities, or an average of 25%. This is more striking in the second period where the percentage of the Irish population was 10.8 and the average insane 24.2. Again, the English from the cities and towns are relatively constant in proportion both to the insane and to population; the French, on the other hand, largely come from the cities. Further, the Germans show a much larger proportion from the city, the country yielding only numbers consistent with the population of the State as a whole. Again, the Swedes come largely from the country, the cities being represented by a very few. Lastly, the study shows that the Italians come in equal numbers

\* Causes of Insanity.

from the country and city. As a whole, then, the cities send much larger numbers of foreign insane, relative to the population, than do the counties.

In a manner similar to the foregoing, studies have been made of the insane from two of the largest cities, namely, Hartford and New Haven. It has been found (1) that Hartford has more native insane in proportion to the native population than New Haven; (2) that there is a proportionate decrease in the percentage of native insane in the two cities in the middle period over that of the earlier and later periods; and (3) that there is the usual large proportion of Irish insane from the two cities. As compared with the whole State, Hartford and New Haven show even larger proportions of foreign insane than do the cities as a whole over the counties of the State.

#### PROPORTION OF INSANE BY NATIONALITY AND BY COUNTIES.

Not the least interesting part of this study is the following table which shows the proportion of each nationality from the various counties of the State.

NUMBER OF POPULATION TO EACH INSANE PERSON BY COUNTIES AND BY NATIONALITY.

Period	Native			Irish			English			German			Swedes		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Fairfield.....	642	388	377	350	166	158	659	240	218	288	230	236	280	298	244
Litchfield .....	719	432	300	315	132	150	...	235	206	231	174	277	...	...	230
Windham .....	974	439	427	948	218	104	...	453	231	...	...	162	...	341	129
Tolland.....	484	410	347	190	77	...	...	110	117	631	625	184	...	...	...
Hartford.....	579	340	333	185	116	84	471	213	129	342	208	160	661	430	188
New Haven....	559	364	407	286	122	147	586	170	306	326	191	438	...	308	192
New London...	561	429	366	150	107	90	206	241	173	140	779	162	...	149	...
Middlesex.....	271	191	195	117	75	73	258	118	147	493	146	139	341	155	113

This table shows the proportion of sane to insane population by counties and it is interesting to note (1) that, concerning the native insane the proportion has increased quite remarkably during the three periods, but that the increase of the last over that of the second is very slight. Fairfield, Litchfield and Windham counties show the lowest proportion of native insane. (2) Emphasizing what we saw to be true above, the Irish show marked proportional increases in every county with the lowest proportion of sane to insane in Tolland, New London and Middlesex counties. (3) The Swedes and native Americans show the least insane to population. (4) In but few cases the proportion of native insane is larger than those of foreign nationalities.

## SUMMARY.

A study of the histories of seven thousand six hundred and fifty-seven cases of insanity covering a period of thirty-two years may be summarized briefly in the following general observations: (1) The ratio of the insane to the general population is much larger than most statisticians have estimated it to be, but the increase in the proportion of the insane is very much smaller than has been determined heretofore. (2) The foreign element of our community shows much the larger proportion of insane than does the native. The native insane, however, have increased to a considerable extent, but not in the same proportion as the foreign insane. (3) The cities show a much larger percentage of the insane than do the counties, but the counties show an increasing proportion of insane in the later years. (4) We have also seen that the large proportion coming from the cities is due to the larger percentage of the foreign element in the city, also that with increase of the foreign element in the country there is an increase in the insane. (5) The Irish show the largest percentage of the insane. The Germans are next in proportion. The native Americans show the least insane to population. In general the middle period (1880-1890) shows the largest proportion of the foreign insane. (6) In proportion to population, the Irish lead all other nationalities in the production of insanity. (7) The cities, as a whole, send much larger numbers of foreign insane in proportion to the population than the counties. (8) As compared with the whole State, Hartford and New Haven have larger proportions of foreign insane than the cities as a whole over the counties of the State. (9) Fairfield, Litchfield and Windham counties show the lowest proportion of native insane.

I have to acknowledge the hearty cooperation of Dr. Allen R. Diefendorf, psychiatrist and pathologist at the Connecticut Hospital for the Insane, who has given much time to the supervision and criticism of the work. I am also greatly indebted to Dr. Charles W. Page, former Superintendent of the Institution, for many privileges granted. To these and to all others, who by criticism and suggestion have aided in the work and especially to those who have helped in the laborious collaboration of the tables which have made this work possible, I am exceedingly grateful.



## THE STUDY OF A NON-DEMENTING PSYCHOSIS BY LABORATORY METHODS WITH REMARKS ON THE LOCALIZATION OF THE DISORDER.

By CHARLES L. DANA, A. M., M. D.

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SUMMARY.—*The history of a case of chronic manic-depressive insanity.*

*First attack one of mild depression; second, of depression and katatonias; period of twelve years of paranoid condition; third attack one of acute mania, stupor followed by chronic mania, which is present condition, having now lasted six years.*

*Study of psychical condition by laboratory methods at three different intervals covering a period of three years.*

*Results and remarks on nature and localization.*

There is an inclination to make a broad distinction between psychoses which are dementing and those which are non-dementing. Perhaps on the whole there is justification for this. There has always, at best, been an opinion that an insanity does not stand still, but has a tendency to pass either into a worse or a better condition.

It has probably never been proved that an insanity can reach a certain stage and then remain as absolutely without change as the condition of a callus after a fracture or a cicatrix after a burn. It is, however, not *a priori* impossible that this can be so. We do sometimes see cases of a degenerative disease such as tabes or nephritis remain absolutely stationary.

It is my purpose here to report the history of a case in which absolute arrest was observed in a distinctly degenerative insanity.

The history was, I think, of especial value because of the methods employed in studying the symptoms and the particularly

careful and elaborate examinations made at three different periods of time. These methods can, I trust, be applied in other cases in which it is especially desirable to form that most difficult thing in psychiatry—a positive prognosis.

The patient, X., a man aged 42, was of a distinctly bad heredity. His father had an unusually strong and vigorous mind; his mother was a healthy and normal woman until the age of 40 when she had a short attack of mania; at the age of 56 she had another attack of acute mania followed by a kind of neurasthenic insanity characterized by a mysophobia and fear of food. She ultimately recovered.

The patient himself had always been somewhat eccentric but had a certain quickness of intelligence in many directions. His habits were good and he had never contracted syphilis. At the age of 19 (in 1881) he became depressed and was sent to Europe. He recovered in about six months. At 23 (in 1884) he again became depressed and after a few weeks, accidentally it was thought, wounded himself with a revolver. For six months he refused to speak and had to be fed (katatonic?). Then he became filled with lively delusions of an expansive kind. These gradually subsided and at the end of two years he resumed life with his family. For the next twelve years he remained well, but was excitable, eccentric, suspicious, and had one or two fixed ideas of a delusional kind which occasionally came to the surface. He was very extravagant in his habits but was not dissipated and passed generally as a normal person fond of books and of mechanical inventions.

Twelve years after the first attack, in the fall of 1896, the patient then 40 years old, suddenly developed acute mania with delusions of grandeur, thinking himself the Sultan of Turkey and other important personages. He became very violent and was committed to an institution. In a few weeks he passed into a stuporous and demented state and in a few weeks more gradually improved. Within two months of the time of his acute attack he reached about the stage in which he has remained ever since, a period now of six years. He could go about the sanitarium and take reasonably good care of himself. His orientation was very imperfect. He did not appreciate truly the nature of the place he was in; he understood but vaguely who were his doctors, attendants or relatives,

although he recognized them by their names. He thought he was Vanderbilt, J. P. Morgan, the Sultan of Turkey, also that he was himself, X. He could recall some incidents of his past life but they were *disjecta membra* and were referred to only on questioning.

He did not remember the names of new persons, nor could he recall recent incidents, but rather because of inattention and self-absorption than from active dementia. His egotism was very intense and his domestic affections were absent. He showed no love for his family, nor solicitude for them and no interest in his friends; his sexual feeling were blunted. He had always been of a mechanical and somewhat inventive turn of mind and his whole interest became centered in calculations with figures, designs and drawings, illustrating ridiculous and impossible theories. His powers of simple addition and calculation were good; he could write correct phrases and occasionally a short and sensible letter.

At one time he wrote poetry, of the nonsense-rhyme type, showing rhythm but not rhyme and absolutely no sense, though he always thought it was sensible and would try with elaborate effort to explain his supposed central idea. His answers on common every-day topics would be for the moment sensible but interrupted by utterly irrelevant and silly ejaculations or phrases often producing most comical effects. He knew and cared nothing for current events and had no interest in papers or pictures except as suggesting to his own mind something pertinent to his own calculations. His life was essentially absorbed in trying always to work out some idea lying beclouded in his brain.<sup>1</sup>

He was amiable and courteous except when too harshly pressed

<sup>1</sup> The following is one of Mr. X's compositions:

"Dew makes her drops like pearls, in shade and shadows a round  
world does picture rain by intuition.

Yet green grasses wake those other drops of nature's making  
Whose greater depths father gentler hues.

Yet both the same, one seems of more color.

Than other tends.

The gentle dew can show a little picture of her softer veil.

The other in Winter's stillness tends the ear and wakens reflections  
of an eternal world.

Two senses thus do brighten to seeming oneness."

with objection and criticism, when he would get very angry but never violent. He could play pool and checkers fairly well if his attention was occasionally coached. He could learn no new game, however, and had forgotten his bicycle and his tennis. He had lost his religious feeling, but read his prayer-book occasionally and perfunctorily. He was on the whole rather exalted and happy, rarely morose and never melancholy. He showed no esthetic feeling, was not affected by music, but had never been musical. He showed no interest in art or attractive things, took little pleasure in riding or walking or natural scenery. He was neat and cleanly in person and in his toilet and made only casual mistakes in his table manners. His manner was that of an active, talkative man, much absorbed in his literary, inventive and mathematical work and glibly anxious to describe to others the wonderful things he was working out. He could not be aroused by any appeals to feelings of enmity, malice, or of unselfishness.

Physically, his health was perfect and he slept well, ate moderately, smoked and drank a little and showed no somatic signs of degeneration or dementia.

For six years he continued in this condition. For certain reasons it became very important to know whether he was very imperceptibly passing into dementia or was equally imperceptibly recovering. His recovery from the first attack led to some hopes of the latter possibility. It was therefore determined to put him through all possible psychical tests that would in a way at least measure his mental state. For this purpose I secured the co-operation of Prof. J. McK. Cattell to whose skill and interest in the case I am greatly indebted.

Prof. Cattell with an assistant, Dr. Dearborn, spent a good part of a day applying to him all the methods of the psychological laboratory, which could be utilized in examining his nervous system and the simpler psychical states and reactions. Some of these tests were continued at intervals for some weeks under the direction of an attendant. The same process was repeated three months later and again three years later.

The general lines of examination were those indicated in the Psychological Case Record devised by Prof. McK. Cattell and myself. The object was to examine all the motor functions, special and general sensations, the motor reactions and the elemen-

tary and more complex psychical functions so far as they could be in any way measured.

I present first Prof. Cattell's report of the examination made March 1899 with supplementary examinations by the attendant and physicians in charge.

*Dear Dr. Dana:*—I made on March 11, a careful examination of your patient, Mr. X., in accordance with the methods proposed by you and arranged in our consultation. Mr. X. was throughout interested and very willingly and with pleasure did what we asked, so that we were able to make all the examination that we had planned. Apart from the knowledge gained of the condition of Mr. X., I believe that making the tests was beneficial to him as it led him to fix and keep his attention on a definite subject that was of interest. When the tests are repeated about three months hence it is probable that we shall obtain some definite information in regard to the progress of the disease. Owing to the changing condition from day to day, it may not be possible to depend on only two examinations, but Dr. J. —— has undertaken to superintend some simple tests made weekly.

I may add that Dr. J. —— assisted us in every way, and it was evident that he and the attendant were doing everything that can possibly be done for the comfort and welfare of Mr. X.

I subjoin a detailed statement of the examination, though of course its chief value depends on future records showing progression or the reverse.

*Vision.*—There was apparently astigmatism in one eye, but no special examination was made as this had already been done. Color vision was normal. The preference for one of twenty colors was blue, which is most commonly selected.

*Hearing.*—Normal.

*Sense of Smell.*—Normal: the odors were correctly named and likes and dislikes were normal.

*Muscular Sense.*—Normal.

*Skin Sensations.*—Sensation-areas were abnormally large, e. g., 1 cm. on finger tips. This is probably due to bluntness of sensation but might be from lack of attention. The test is difficult to make in a short time, and should be repeated.

*Sensitiveness of the Skin.*—The pressure that just caused pain

on the skin was for right hand 11 kg., left hand 10.1 kg., forehead 4 kg. This is nearly twice the pressure causing pain to normal subjects and shows great bluntness.

*Dynamometer Pressure.*—Right hand: 11 to 14 kg. Left hand: 20 kg. The pressure with the left hand is about one-half the normal for the preferred hand and is still less with the right hand. The contractions were made with difficulty especially with the right hand. Mr. X. uses his right hand for writing, but seems to be normally left-handed.

*Muscular Fatigue.*—The amount of work done in ten pressures continued fifty times was as follows:

	Right hand.	Left hand.
1st set of 10	81 kg.	84 kg.
2d " "	74	77
3d " "	69	65
4th " "	69	70
5th " "	64	62
Total . . .	357	358

This shows some weakness but a normal course of fatigue. The two hands could do almost exactly the same amount of work.

*Rate and Accuracy of Movement.*—100 marks were made in 41 secs. and when they were aimed to hit points in 61 secs. This is about one-half the normal rate. The error in the latter case was 0.67 mm. which is small. The patient thus showed a tendency to be accurate rather than quick. Straight lines were drawn normally without undue tremor. In writing a name as rapidly as possible 21 times the rate (8½ secs.) was about normal. There was no fatigue or degeneration in the hand-writing.

*Rate of Perception and Movement.*—Marking 100 As in 500 letters resulted as follows:

	Time.	Omissions.
1st trial	170 secs.	4
2d "	164 "	6

The average time for normal subjects is 95 secs., and the average number omitted 2.6. In the first series there were three pauses (19 secs., subtracted above) in which the attention wandered. Words were read at the rate of ½ sec. each, which is only slightly below normal. 100 playing cards were sorted into suits in 157 secs. This is only slightly slower than normal.

*Adding.*—Fifty columns of digits were added quickly, regularly and without a single mistake. The times for each set of 10 columns were 39, 45, 50, 46, 48 secs.

*Perception of Size.*—In drawing ten times a line equal to one 10 cm. long the error was 1.2 cm., which is about twice the normal error.

*Perception of Time.*—In reproducing intervals of time of 10 secs., he gave them 9.7 sec., which represents an error about twice the normal error. He thought the interval was two or three seconds; it is apt to be overestimated.

*Memory.*—The memory for eight numbers reproduced after hearing once was unusually good—once quite correct and in two cases with one inversion. This is above the average of normal individuals. He could not remember numerals showed him. Logical memory for a passage of 100 words was very defective. He could only reproduce automatically a phrase or two.

*Visualization.*—This was very poor, but it is sometimes so with normal individuals. He could not remember the numerals showed him. He could not call up a mental image, as of his breakfast table or the billiard table. He could not draw a groundplan of the hall from memory, or state the number of doors, color of paint, etc. He did not know the state of the weather the day before.

*Suggestion.*—No suggestions or induced hallucinations were successful. He could not be persuaded that there was a smell of cooking in the room, that a line looked like a bird, that it rained the day before. He had, however, slight hallucinations that the room was close, that he needed a remedy for a disorder that did not exist, etc.

*Suspicion.*—He was entirely free from suspicion during the use of the instruments, etc., though some of these, as in measuring the head, etc., would readily awaken suspicion. He, however, crossed out the names he had signed, and would not answer questions directly.

*Associations.*—These were incoherent. When asked what certain words suggested he would define the word or say there were different kinds of birds, knives, etc., or answer at random or incoherently. The times of association were long. In filling out sentences and words omitted from sentences the result was on the whole roundabout or incoherent. Thus he would continue the sen-

tence. I dislike . . . "seeing much applied in wrong ways when it is easier to do them nicely though much seems increase that in reality would be measured by one's idiosyncracy and condition," or, I remember that once . . . "more one can note that ten and one seem eleven." The experiment on association will be of special value when repeated.

The knee-jerks were present. No special physical examination was made, but the pulse was normal. The head was slightly longer and distinctly broader than the average.

In addition to these tests as much information as possible was obtained by conversation with the patient, by playing billiards and checkers, etc. This information will prove useful in comparison with the results of a future visit.

It will be seen from the above that the patient's higher senses are normal, while his sense of touch and his power of movement are defective. Partly automatic processes like adding, sorting cards, and remembering numbers were quite normal, and the attention in such cases could be held nearly as well as by normal individuals. In rate of perception and movement, accuracy of perception, etc., he showed about one half the ability of ordinary individuals. Visualization was poor, hallucinations could not be suggested, there was no suspicion or impatience. The higher mental processes were incoherent. If the tests are repeated under the same conditions we may hope to secure valuable information regarding the progress and probable outcome of the disease.

Yours very truly,

(Signed)

J. McK. CATTELL.

A second examination was made by Prof. Cattell, Dr. Dearborn and myself, in July, 1899, four months later. The following is Prof. Cattell's report:

The result of the examination of Mr. X., on July 12, as compared with that on March 11, indicated the same general condition with some improvement. This improvement may, however, only be due to a better temporary condition. The general confirmation of the tests previously made appears to prove their validity, while the improvement shown by the tests is confirmed by observation of the condition of the patient.

As before the patient showed great bluntness to a painful pres-

sure, muscular weakness, greatest with the right-hand, good organic memory, excellent ability to add numbers, and was generally good in automatic processes. Logical memory was as before very defective, but the answers to questions of orientation and the filling in of the association blanks showed improvement.

In the preceding examination the absence of visual imagery suggestibility and suspicion were striking. On our last visit all of these appeared to be present. He could remember the letters shown him and seemed able to call up some images, he seemed almost persuaded that he had gone out the day before in the rain and got wet, and that water was perfumery. He was very suspicious of the smells. Hallucinations, and suspicion being natural to the patient, the difficulty of artificially suggesting them is psychologically interesting, and the change in attitude may prove of use in diagnosis.

#### TESTS BY ATTENDANT.

1899	Condition	Striking out letters	Filling squares with dots	Adding
March 20.....	<b>Depressed</b>	145	62	85
".....		122	55	85
April 4.....	<b>Very cheerful</b>	115	54	102
".....		118	64	105
May 12.....	<b>Cheerful</b>	125	45	115
".....		142	52	110
May 13.....	<b>Cheerful</b>	..	50	79
"14.....	"	126	..	124
"15.....	<b>Very cheerful</b>	..	56	75
"16.....	<b>Somewhat depressed</b>	130	..	192
"17.....	<b>Cheerful</b>	..	55	98
"18.....	"	118	..	75
"19.....	"	..	52	83
"20.....	"	144	..	88
"21.....	"	..	50	84
"24.....	"	152	..	86
"25.....	"	..	44	80
"26.....	"	..	45	72
"27.....	"	..	..	95
"28.....	"	..	..	86
"29.....	"	..	..	98

The figures indicate time in seconds.

The tests of quickness, etc., were in part left to Dr. Dearborn and were somewhat interfered with by a severe thunderstorm. In any case the daily tests by the attendant would be of greater value, being not only more numerous, but also made under similar conditions. I enclose a summary of these. They indicate a

generally stationary condition (some improvement being due to practice), indeed the constancy of the times from day to day is remarkable. It is most interesting that on May 11, the patient was "somewhat depressed" and the time of adding was very long. This is followed in the two following days by a very marked improvement, his quickest time being on the 18th.

Signed.

J. McK. CATTELL.

Three years later, in May, 1902, the patient went through another examination of a similar character, of which the following is a report:

The examination made of your patient, Mr. X., on May 31, shows that his condition is very nearly the same as when he was examined by me three years ago. This stationary condition through so long a period without any signs of recovery or progression is indeed somewhat remarkable.

I enclose a comparison of the tests made in April and July, 1899, and on May 31 last, drawn up by Dr. Woodworth, who assisted in the examination. These records show that the result of the present measurements was in general intermediate between those of the two tests made three years ago. The variation is in most cases within the limits that might be expected when such tests are repeated on a patient whose attention is not under good control.

There is a slight decrease in muscular strength, but no other change of importance. It will be seen that Mr. X., as compared with the normal individual, shows no deficiency in the accuracy and speed of processes that have become automatic, such as quickness of movement, rate of perception followed by the correct reaction, reading English and German words, adding numerals and organic auditory memory. If the disease progresses these acquired automatic activities would break down, and I think it desirable that certain of the tests be made once a month by the house physician in order to obtain early information of any change.

The patient does not show deficiency in the higher senses, but touch and the sense of pain are defective.

Logical memory and normal association of ideas were highly defective, as might be expected from the character of the patient's malady. The result of importance here is the almost exact cor-

respondence of the tests made now and those made years ago. An improvement in the patient's condition, should it occur, would be shown at an early date by such tests.

Attention should be called to the lack of suggestibility of the patient, including the absence of normal optical illusions. This test, which so far as I am aware has not hitherto been made, may prove important in diagnosis.

Apart from the tests I observed the patient as carefully as possible, talking with him, playing billiards, etc., and my observation confirms the results of the tests, namely that the mental and psycho-physical condition of the patient is almost exactly the same as three years ago.

Very truly yours, J. MCK. CATTELL.

The following shows the comparative results of the examinations made in 1899 and 1902:

*Orientation.*—Comparison of answers made by Mr. X., to the same questions.

Question.	Answers July, 1899.	Answers May, 1902.
Name?	Morse early in life, later Mr. X.; on railroad 'bus, Corn, Vanderbilt. Also Rothschild.	(After hesitation), Mr. X. I've been called C. Vanderbilt on shipboard.
Age?	Don't know; my head is to blame.	I should imagine I'm over 40.
Where born?	Same answer as last.	Don't know exactly, but I was raised in New York.
How long have you been here? ....	Can't answer definitely; over 6 months, or 1 year, or 1½ years.	I've been here, it would seem, about 2 or 3 years.
Doctor in charge?....	Dr. J. _____ attended partly.	I've had 2 or 3 doctors; Dr. J. _____.
What town is this?..	Monroe, partly, August Belmont could tell better than I.	I couldn't tell you owing to my position as a railroad man, etc., etc. Monroe, N. Y., I know it by the railroad station.
Do they take good care of you here?.	Pretty good usually.	Yes, sir, very good.
Any one here who bothers you?.....	No one, etc.	Not at all.
Do you know any other guests here?	I have been introduced to one or two.	I'd be very glad to know the names of some of the guests. I don't know the names of many of the guests.

## COMPARATIVE RESULTS OF TESTS MADE ON MR. X.

Tests.	Mar. 1890.	July 1890.	May 1902.	Average for Columbia Students.	
<b>Strength of hand:</b> Right (kg.).	12.5	12.5	10.8	36.3	4.9
Left. ....	20	15	14.8	33.5	4.7
<b>Fatigue (per cent)</b>	Right.....	88.1	79.1	69.2	65.1 27.0
	Left.....	85.2	86.7	67.6	.. ..
<b>Pain Threshold:</b>	Rt. hand...	9.5	15	13	5.9 2.4
	Left hand...	9	14.5	11	5.6 2.2
	Forehead ..	4	4.5	2	.. ..
<b>Aesthesiometer, finger-tip.</b> Not closely determined, but above 2mm., normal.					
Perception of Size (mm.) ....	5.5	..	4.8	2.4	2.0
Perception of Weight (gr.) ....	112-104	100-116	100-108	..	..
<b>Marking out As:</b> Time.....	167	..	136	100.2	12.2
As omitted .....	5	..	3	2.2	1.6
<b>Speed of Movement (gr.)....</b>	41	96	45	34.1	4.3
<b>Accuracy of Movement: Time..</b>	61	70	46	49.0	7.0
Av. error (mm.).....	0.67	1.60	1.16	0.8	0.3
<b>Association-time (mm.)....</b>	130	..	240	55.4	22.9
<b>Adding 50 Columns, Av. (mm.)</b>	4.6	9.7	6.2	..	..
Total Errors.....	0	0	1	..	..
<b>Sorting 100 Cards. Total time..</b>	157	265	103	..	..
Errors .....	..	3	6 or more	..	..
<b>Memory—Aud., No. Recalled..</b>	7.3	5.3	7.3	7.6	0.4
Vis. " "	3	6	2.7	6.9	0.5
Logical (per cent) ...	0		2	44.5	11.1
<b>Assoc.—Filling Blanks:</b>					
(1) Long Passage.....	6' 10"	..	5' 20"	..	..
(2) Short Sentences, 1st...	42"	..	180"	..	..
2nd..	62"	..	30"	..	..
Av. of 5.....	..	..	40"	..	..
<b>Reading 100 Words: English..</b>	59"	..	52"	..	..
German..	84"	..	71"	..	..
<b>Smell .....</b>	good	good	good	..	..
<b>Suggestion of Odor.....</b>	no	slight	no	..	..
<b>Color Preference.....</b>	blue	blue	blue or yellow	..	..
<b>Illusions, Optical.....</b>	..	..	no	..	..

These records speak for themselves. They show beyond a doubt that this patient, having "sloughed off" certain psychical functions has ceased to undergo further degeneration and there is, so to speak, only the non-progressive partially demented state left. Perhaps in time further degeneration will set in, as age increases and the natural process of senility takes its part, but for the present the mind is at a complete stand-still. The psychosis is neither dementing nor non-dementing.

This case and its examination lead to another interesting conclusion regarding the anatomical and psychological localization of the disorder.

By a process of exclusion we can say that none of the cortical areas of the zone of language are in the least directly impaired.

The sensory motor zone and the perceptive zone of appreciation of form and contour are practically normal. The patient draws as well as ever and is skillful in the use of his hands. The sensory zones of vision, hearing, taste and smell are normal and all those areas, if any, which in any wise minister to the bodily functions are normal though his appreciation of food and drink are rather automatic and his sexual appetite is gone.

On the other hand, all those association tracts by which language is coordinated in its responses so that it becomes logical and intelligent are absent. His language is ready but irresponsible. Also the same groups of association tracts which modify motor acts to definite purposes are gone. He can make a wonderful shot at pool but he uses the wrong ball and cannot count. So with all the other simple reactive and automatic movements. The association control is gone.

In his voluntary mental activity there is simply a play of ideas as confused and unrelated as those of a confused inebriation. He has ideas, but he cannot direct or correlate them.

Anatomically, therefore, we have a disorder of the association tracts. I would not attempt to say this disorder is in any particular part of the brain, but it must involve a rather distinct class of neurones embryologically and developmentally of the same character, yet not developed at the same time because there is no period of child-life which corresponds to this psychosis.

Psychologically it is an association disease, but involving a particular group of association fibers, viz., those connecting well-developed perceptive memories and definite idea-units, not simply those, for example, lost in language disorders, or motor disorders and leading to aphasias and ataxias.

## STATUS EPILEPTICUS: A CLINICAL AND PATHOLOG- ICAL STUDY IN EPILEPSY.\*

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### INTRODUCTION.

In the light of recent research, idiopathic grand mal epilepsy, can no longer be considered a neurosis. When we shall have determined definitely what its histocytological changes are, the relationship and relative importance of the predisposition and the immediate excitant can be established. In order to determine the exact histological lesions in the epileptic's cerebral cortex, we must study the epilepsies at their maximum intensity, namely, in the status epilepticus. From this viewpoint we shall present clinical and pathological data based upon a study of the status condition.

If it be determined that there is a definite destructive lesion in the epileptic brain, after one or several hundred seizures (status epilepticus), the mechanism of the last attack being identical with the first, then there must be the same nervous elements involved in the morbid mechanism from first to last. The cerebral lesion in epilepsy proper must therefore be in those cortical elements found ultimately damaged or destroyed in the status epilepticus. While we have endeavored to add to our clinical and pathological knowledge of some of the different phases of epilepsy, an effort

\* Awarded the Stevens' triennial prize of Columbia University for original research, June, 1903.

has been made to review some of the problems of status epilepticus, the study of which has engrossed our attention for the past five years.

Our paper is based upon the personal study of 38 cases of status epilepticus, embracing typical and atypical cases; 5 cases of serial attacks or *état mal de passage*; 4 cases of status equivalent consisting of stupor, delirium, hiccough and psychic seizures. For the sake of differential diagnosis 4 cases of status hystericus were also studied as it closely simulates true status epilepticus in many of its phases. To prove that the pathological lesion of status is essentially that of epilepsy proper, several cases of ordinary grand mal epilepsy were included in the clinical study.

No comprehensive thesis upon status epilepticus has appeared since Lorenz's article in 1890, and although his study was based upon a series of eighty cases, but three cases were his own.

Hitherto status as a sequela of epilepsy has been given very scant consideration in text books and works of neurological research; indeed, but a bare mention of the condition prevails in most modern works on nervous diseases. The lack of attention which the subject has received is due in no small part to the fact that it occurs most frequently in the family; the transient nature of the condition, in which the patient speedily recovers or dies, renders the status doubly difficult and impracticable of observation and treatment. However, the treatment which in the past has always been discouraging, modern rational methods render more hopeful. But still in many instances the appalling sight of the brutal expenditure of muscular energy in the status is not more vivid than the physician's feelings of helplessness in attempting medical aid. A careful study of status in its incipiency must materially aid in treating epilepsies and in caring for epileptics. Special attention has therefore been given to the section on therapeutics.

#### BRIEF HISTORY OF THE STATUS IN EPILEPSY.

Status epilepticus was occasionally alluded to by the old clinicians as a state of epilepsy in which paroxysms follow each other rapidly, running its course in a period of a few hours or days, and attended by grave prognosis. In superstitious times the condition was regarded as a climax of hurricane fury of demoniacal

possession. Certainly the state inspired no little awe of the epileptic, who might at any time be seized with such fury that life itself was usually lost in a few hours. Such was the awe-compelling significance of the state that a very luminous essay might be kindled from the remains of the ancient allusions to this form of a nether world possession.

However, the first actual treatment of the subject from the modern viewpoint of a disease, was in the early part of the 19th century by some of the physicians at the Salpêtrière and Bicêtre Hospitals of Paris. Bouchet and Cazauvieilh, in 1825, first used the expression *état de mal*. Beau, in 1836, speaks of the condition as having been a familiar one for years in the Salpêtrière. Delaslaive the well-known epileptologist of the Bicêtre, enters into the symptoms, prognosis, and treatment of status epilepticus in his work published in 1853. The writers of this period held the opinion, as some still do, that status is an apoplectic or meningeal complication of epilepsy. Although recent neuro-pathological studies do not support this view, it is not uncommon to find vestiges of low grade inflammatory products in the meninges and occasionally in the encephalon itself which are referable to the epilepsy proper. Bourneville first took up the subject of status in 1869, and has written extensively upon it yearly since this date. A large number of reviews, theses, and papers have appeared in the past thirty years.<sup>1</sup> Lorenz collected notes of thirty cases, while since his dissertation at Kiel it would not be difficult to find mention of nearly as many more. The status is not only a fairly well recognized state of the epilepsies, but like many another disease process, the more carefully it is studied, the greater the number of cases that appear in evidence.

In consequence of Bourneville's clinical material being so scattered in out-of-the-way periodicals, and in the absence of a resume or review of the author's published cases, Lorenz and the present authors have been unable to consult all of his writings on the status. Undoubtedly Bourneville's name is most deservedly connected with our present clinical knowledge of the subject. It is

<sup>1</sup> For a list of such, including the most recent and comprehensive monographic consideration of the subject by Lorenz (1890), the reader is referred to the annexed bibliography at the end of this thesis.

not at all unlikely that a thorough and exhaustive survey of all the literature of epilepsy to date would bring to light at least 300 cases of status epilepticus.

No writer, with possibly the exception of Bourneville, has personally observed all the states of status in a great number of cases. Trowbridge of this country gives notes of but twelve cases personally observed, while Voisin has cursorily observed but a half dozen, and Gowers states that it is to be seen only in asylums for epileptics (Monograph, Epilepsy, 1881). Other writers mention the great rarity of the condition. Our findings, nevertheless, lead us to maintain that it is the chief cause of mortality in asylums for epileptics, and we would also add that it is alarmingly prevalent in epilepsy both in and outside of special institutions for this class. The judicious use of the bromides materially discourages the occurrence of status epilepticus. This point will be dwelt upon at greater length in a later chapter.

However peculiar the statement of some authors upon the rarity of status may appear, it is much easier of explanation when it is found that fully one-half of the causes of death in epilepsy, in and out of institutions, are from these significant causes; "asphyxia in convulsions," "acute exhaustion," "pneumonia secondary to eclamptic convulsions," "delirium and coma from convulsions," etc. The change from the above alleged causes of death in favor of *status epilepticus*, of which the terms just cited are but the terminal stage, is due, no doubt, in greater part to the modern interpretation of status, it being considered more a true climax of the disease and less a chance termination which by proper treatment could be avoided; certainly, chance plays no part as agent in the production of the status. An epileptic is foredoomed to die of the status as the maximum development of the disease, if all possible complicating causes such as intercurrent affections are removed.

In closing this section, we would urge that investigators desirous of adding to the knowledge of essential epilepsy should be kept as far as possible from complications which may modify or minimize the pathological findings, such as idiocy and imbecility, with which Bourneville has contended not altogether successfully, either clinically or pathologically. There are always varied pathological states of the meninges and encephalon in well marked

idiocy, which will certainly obscure the clinical and pathological picture of epilepsy. Furthermore, such researches should be conducted upon epileptics of as normal mind and physique as possible, as both these factors have clouded the autopsy findings. In other words, our knowledge of the status has advanced to such a point that work upon chronic insane epileptics cannot essentially aid in solving the histo-pathological lesions underlying the status and the pathogenesis of the epilepsies.

#### WHAT CONSTITUTES STATUS EPILEPTICUS?

As to what phase of epilepsy should be called status epilepticus, authorities still differ. Some erroneously contend that several attacks occurring daily in an epileptic constitute status; such a condition is termed by most competent writers serial attacks or serial epilepsy. A few writers may be found to maintain that only incessant attacks accompanied by great exhaustion and fever which generally terminate in death, can be called true status. We must admit that it is with status as with many other phases of epilepsy; it has no exact definition. For the typical case, however, the condition may be defined in the following terms: *Status epilepticus is the maximum development of epilepsy, in which one paroxysm follows another so closely that the coma and exhaustion are continuous between seizures.* The state is almost always sooner or later accompanied by a marked rise of temperature, pulse and respiratory frequency, which is indicative of the degree of exhaustion. With status, as with epilepsy proper, there are many varieties and equivalents. Status being confined largely to the grand mal form of epilepsy, its variations are obviously less bizarre in their exhibition than epilepsy proper. However, status may be composed of delirium, stupor or coma, cough or hiccough, and a variety of psychic states which have for their basis cortical discharges resulting in more or less complete physical and psychical exhaustion. The different varieties and equivalents were included in the clinical study. From the convulsive standpoint, status is usually composed of ordinary grand mal epileptic paroxysms, or it may be composed of one prolonged tonic or clonic spasm lasting for an hour or more, or until death. The seizures may be wanting in tonic or clonic elements, but if either one be abbreviated the former is the one usually modified or omitted. Status periods

composed entirely of tetanoid or statuesque attacks are not unknown but are very rare, much more so than in epilepsy proper. Usually prolonged paroxysms constituting status have periods of intensity throughout their course, at which nodes an imbrication or overlapping of ordinary clonic seizures can be detected. Generally this form of status is hemispastic or monospastic in its manifestations, thus robbing the state in part of its danger of immediate death. However, a prolonged general clonic spasm rhythmical throughout and without Jacksonian order of invasion, is not unknown, although its occurrence is exceedingly rare. Status may also exceptionally consist entirely of psychic seizures, absences or vertigo, with or without a fever curve. One case under study during the past year had 769 typical seizures in twelve hours. The same case a few days later had a period of 500 psychic seizures, with subnormal temperature at the phycic status or serial period; a most unexplainable and interesting freak in the psychic phenomena of epilepsy.

As to the division of true status epilepticus, Bourneville has attempted to classify it into three or four different varieties, and serial attacks or serial epilepsy into two divisions. Serial attacks are nothing more than stepping stones to status. It is unnecessary to further complicate the status of epilepsy by undue multiplicity of terms. In considering the definition and different kinds of status it is interesting to note that Trowbridge regards status as the climax or acme of epilepsy, but serial attacks which generally terminate in status he believes to have no connection with status epilepticus. Notwithstanding such statements, most careful observers believe that the whole symptom-complex of epilepsy is so indissolubly connected that it is undesirable if not impossible to isolate any one link in the pathological chain which connects the inception of the disease with its final termination. It is usually a varying epilepsy plus a varying amount of sedative treatment that forms the status periods, and not status pure and simple. This fact must be carefully considered in correlating the observations and deductions of different cases.

#### FORMS OF EPILEPSY IN WHICH STATUS OCCURS.

Status occurs most frequently in those cases of idiopathic epilepsy in which grand mal seizures predominate. Of the cases under

our study during the past 5 years 38 were of this class (not infrequently, however, petit mal may constitute the status), while 2 only were of the psychic variety. Of those forms of idiopathic epilepsy terminating in fatal status, only the grand mal type are in great evidence, while it is a rarity to see psychic status epilepticus terminate fatally. No definite rule can be laid down governing the liability of any particular case of grand mal epilepsy to end in status. All symptomatic epilepsies dependent upon gross organic brain lesions, as abscess, tumor, etc., are particularly prone to develop status, with which the majority usually die. In such, the status is usually designated as but a mode of death and is rarely elevated to the dignity of a disease per se, or even given great clinical prominence as a symptom-complex; the status pareticus being a signal instance of this viewpoint. Undoubtedly as there is a clear pathologic analogy between all convulsive phenomena, so the different manifestations of status resulting from different brain lesions must bear a certain close relationship to true status epilepticus.

Status is a notable ending to all Jacksonian epilepsies, some authorities to the contrary notwithstanding. As partial epilepsy is frequently suspected to exist when seizures show an unusual tendency to group themselves in series, so status is found in the case histories of hemiplegic epilepticus. While status occurs frequently in the partial epilepsies, yet from the very nature of the form of paroxysms, the percentage of mortality is greatly lessened. The frequency of status in partial epilepsy is well shown by the common occurrence of local transitory paralysis in such cases. The common occurrence of the paralytic disorder in these cases led Jackson and Gowers to state without conclusive evidence that transitory paralysis is a pathognomonic symptom of all status. We shall see later that transient palsy is not at all a constant symptom, therefore not pathognomonic. However, the very frequency of transient paralysis should cause a careful inquiry into the peculiar association of the two phenomena. Transitory paralyses are found most commonly in those cases that have suffered from a lesion of the cerebral cortex in infancy. The milder the palsy the more certain and constant will be the epilepsies of later life. The slight damage to the cortex from infantile palsies is easily outgrown to the point where even the most expert fails to

detect it, but the natural developmental changes cannot remove the epileptic scar, which is often the only palpable evidence of the early cortical damage. Astonishing as it may seem, nearly one-third of the status cases on record have been at basis dependent upon organic lesions of the cortex in early infancy. The convulsions are usually confined to or most prominent in those parts once paralyzed and as serial or status periods occur these parts suffer chiefly from exhaustion and are least stable, thus transitory paralysis phenomena commonly result. The occurrence of exhaustion paralysis in any other form of epilepsy is rare, and all cases showing exhaustion paralysis are to be suspected as spasmodic infantile palsies until clearly proven to the contrary. It is not unusual to see a hemiplegic epileptic have several distinct status periods before a fatal period occurs. One of our cases had seven status periods.

#### INFLUENCE OF SEX.

Some authorities hold that sex influences the occurrence of status. Lorenz and Bourneville both believe that women are twice as frequently affected as men. In the statistics of all cases, however, including 42 of this paper, 67 were found to be men and 44 women. Although this statement is contrary to previous statistics, it is about as misleading as the reported mortality by sex in which fatal status is supposed to occur twice as frequently in women as men. In the 60 deaths out of 56 cases of each sex, or 112 collected cases, 28 were men and 32 were women. In our own cases of 17 deaths, 12 were women and 5 were men. The data at hand are altogether inadequate for us to formulate any definite conclusions in regard to the influence of sex on the production of status or upon its prognosis. Statistics in regard to the influence of sex in the production of epilepsy proper have, at various times, alternated between the sexes when based upon data from different sources, but it has finally been divided about evenly between the two sexes (Gowers). It is certain that the pathogenesis of epilepsy rests too firmly upon the basis of an hereditary predisposition to cortical instability for one sex to materially outweigh the other. This statement also holds true for all diseases that are largely hereditary. If the hereditary factor were of less moment, it is possible that the differences of sex and their

manner of life and occupation, would be great factors for determining a sex preference.

#### INFLUENCE OF AGE.

There is no particular age at which status epilepticus is liable to develop. Its more frequent occurrence at a particular epoch is due to the fact that epilepsy develops at certain periods of life, as in infancy and early childhood, at puberty and in early adult life. In 42 cases of status in this study 3 occurred within the first period, 8 in the second, and 24 in the third, 7 between 30-60. In rare instances status may develop in earliest childhood. W. Ramsay Smith reports one child of three who died of it and another of four who had typical status and recovered. Such cases, however, cannot be ranked with idiopathic epilepsy, as there is probably an organic lesion underlying the convulsive phenomena. It is the general rule for infantile cerebral palsy to be ushered in by convulsions of the serial or status paralyticus, and many of the symptoms heretofore chargeable to the organic lesion must ultimately be ascribed to the convulsive state which attends the lesion, such as fever, bed-sores, etc. While it is by no means uncommon to see status in extreme old age (70 or 80), even after a half century of epilepsy, nevertheless, such a diagnosis of true status epilepticus should be made with extreme caution, as senile epileptics usually die of cerebral apoplexy from arterio-sclerosis—the real cause of epileptiform attacks in such cases. The seizure in senile epileptics raises the blood pressure, which in turn causes an arterial rupture, death generally resulting in a sort of status epilepticus and apoplexy combined.

#### INFLUENCE OF MENSTRUATION.

As a general rule it may be said that true status of classic epilepsy has no more to do with the menstrual function per se than epilepsy proper. This rule for status epilepticus is even more general, notwithstanding the occasional occurrence of isolated attacks of essential epilepsy which appear to be provoked by menstruation or a disorder of it. It is easy to exclude the diagnosis of status epilepticus in any patient having serial periods apparently provoked by a menstrual disorder; a point of great practical im-

portance if the patient is not previously known to be epileptic. It is, however, most unfortunate that grand hysteria in its status form is at times so intimately blended with the true symptoms of status epilepticus that it is impossible for the most expert to make more than a provisional diagnosis; happily such periods are of rare occurrence. A few epileptics have hysteria, which in turn develops into status hystericus at the menstrual periods, while the same patient may have status epilepticus between menses. Classic status epilepticus is not more difficult to differentiate from typical status hystericus than essential epilepsy from major hysteria, but unfortunately there are many variations of the manifestations of both diseases and the most experienced cannot make a definite diagnosis. The value of a differential diagnosis of these two forms of status is not merely a nicety, but one of signal moment from the point of treatment and prognosis.

#### INTERVAL BETWEEN FIRST EPILEPTIC ATTACK AND STATUS EPILEPTICUS.

Because of imperfectly reported cases it is impossible to obtain definite information as to the interval existing between the first epileptic paroxysm and the development of status epilepticus. In Lorenz's article sixteen cases give an average of nine years; the average interval in the notes of 23 cases of this study is 12 years. However, such data are liable to be misleading, as the epilepsies develop at all ages from earliest infancy to extreme old age, and the epileptic contracting his disease in old age obviously should not have a comparative value with those developing epilepsy at puberty; in all, multifarious causes operate unequally. Perhaps the best comparative study could be made between the relative frequency of epilepsy in the physiological epochs. All other theses are too imperfect from which to make deductions, and therefore 42 cases from this study will be taken. In 19 cases developing epilepsy between birth and 4, the average interval was 2 years. In seven cases developing epilepsy between 10 and 14 the average was 6. In two cases over 30 the average interval was 21 years. These data seem to prove that in epilepsies developed in the later epochs, the onset of status is delayed a longer period of time, but the data are too meager to be more than suggestive. The interval

therefore between the first fit and the first status is unfortunately beyond present computation. Within general limits it may be said that epilepsy must become well established before status will supervene. The period of time may be but a few or many years. In making the prognosis of the occurrence of status in a chronic epileptic, we should take into account the pre-disposition, the immediate excitant to the disease, the form of epilepsy, and the course which the disease has already taken; and last but not least the influence of the sedatives must be carefully weighed. There are still many undetermined factors operating in the development of the epilepsies which only experience can make of service in forming our knowledge of the etiology and prognosis of any given case.

#### INTERVALS BETWEEN STATUS PERIODS IN THE SAME CASE.

No definite time exists between status periods in the same case. A period of days, weeks, months or years may intervene. The patient may have but one status period and recover, and never again have another such period in an entire epileptic career. However, cases of this kind are rare and the status in such is usually precipitated by an indiscretion in the sedative treatment. In one case under study the patient had two periods of status with final complete recovery from the epilepsy itself. Generally one attack of status paves the way for another, and in fact, there is no limit to the number of status periods that may occur before death supervenes. Although Bourneville and Lorenz state that a patient cannot have more than three or four periods of status, several of our cases showed four or five, and one case had six status periods under our personal observation before death resulted from the seventh. As a general rule, two or three status periods in idiopathic epilepsy cause death, while innumerable periods of status epilepticus unilateralis may occur in hemiplegic epileptics and death not take place. In proportion as the individual paroxysms of a status period fall short in point of severity of a typical grand mal, so does the gravity of that particular status lessen. Again, the more partial or focal in character the paroxysms become, the longer may the individual status period exist without fatal consequences.

## THE IMMEDIATE CAUSE OF STATUS EPILEPTICUS.

As to the immediate cause of status, the viewpoint of this thesis, that status is the climax of all idiopathic epilepsy, materially lessens the importance of this section. Broadly speaking, the factors are none other than those subtle causes which underlie the continuity of the disease process itself. But from a more superficial viewpoint it may be urged that these clinical factors, which accentuate the degradation of the epilepsy proper, also favor the occurrence of status in a corresponding manner. There are varying degrees of epilepsy, the severity of which are not at all portrayed in the paroxysmal phenomena of the disease. In a great measure this fact accounts for the surprising suddenness with which a status period sometimes supervenes. Briefly, it may be said that any cause that provokes the inception of the disease proper favors the onset of status. It is nevertheless true that very many epileptics never develop status, such cases being often carried off by an intercurrent disease. With the natural forces in causing status, the artificial one due to a too sudden withdrawal of sedatives should be placed. This one factor which lies well within the hands of the physician should enable us to materially lessen the occurrence of status in epilepsy. Status precipitated in this manner is almost incapable of control by a renewed administration of even the most powerful sedatives. This fact renders the practice of a sudden withdrawal doubly culpable.

The epileptic state is about as potent in the production of status as the epileptic predisposition in provoking the first paroxysm in the patient. In other words, the one paves the way for the status in the same manner as the latter does for the first epileptic paroxysm. Certainly after a careful study of many cases of status, and after a painstaking review of all literature on the subject, in not one case could we seriously consider the alleged immediate excitant the true etiology of status. If toxic states were once etiological factors in the production of any case of epilepsy proper, they must have long since vanished. Almost if not all of the toxic blood, urine, and sweat states of the status period, are steadily being proven a *result* and not a *cause* of the condition.

## INCEPTION—SYMPTOMATOLOGY OF STATUS.

As a rule, the absence of prodromes is not a striking phenomenon. In a great majority of cases the status is heralded by a steady increase in the paroxysmal frequency of the epilepsy, either in series, or in a gradual daily increase of attacks spread more or less evenly over varying periods of time. A history of serial attacks ranging from 5 to 15 or 20 paroxysms in 24 hours has been the rule. Thirty-five cases of this study show 32 having a history of serial attacks. These serial periods are a sort of pseudo-status. They are the heralds; aborted, imperfect or incomplete status periods. Usually when status occurs in a fulminating manner, the absence of serial periods is explainable on the basis of large doses of bromides or a gradually increased sedation in the face of threatened attacks. Prolonged bromide medication produces marked alteration in the prodromes of status. All serial periods consisting of from ten to twenty seizures attended by a slight rise in temperature with but little prostration are called "*état de mal passage*" by Bourneville and Lorenz. Occasionally, status begins deliberately in idiopathic epilepsy, in spite of all treatment, with the prodromes of a steady increase of paroxysms from the very beginning of the disease; all the cardinal symptoms gradually increase for a period of several days, attended by prolonged coma, which ends in complete exhaustion and death. Fortunately such cases are very rare. Finally, fatal status is often a symptomatic accompaniment of infantile palsies whose cause acts from the beginning as the exciter of the nervous storm. The findings of meningeal hemorrhages and a varied assortment of cerebral lesions have induced some authors to believe that the status epilepticus of essential epilepsy has identical pathological cerebral states as its basis. However, the work in the pathological section, both macroscopical and microscopical, will prove how faulty this belief is.

The actual onset of the status itself differs whether or not the prodromes of the few paroxysms leading to the typical state are included in the true status picture. For a proper estimate of the state we must include that part which under ordinary circumstances would be classed as serial epilepsy; in consequence, the serial period of status is not materially different from an aborted

status. Therefore one cannot be entirely guided by the previous history of the course of the epilepsy whether the serial period will pass into status or not. The coma or stupor may or may not be immediately recovered from in serial epilepsy as it depends largely upon the previous history of the individual case. There are two fairly distinct clinical divisions of the status period, the convulsive and the stuporous. Bourneville still holds that the last stage should be called meningitic, upon which condition he bases the underlying pathology of the stuporous periods. There are many more arbitrary divisions of the status, but for the purpose of this article the simple designation of convulsive and stuporous stages, based upon the anthology of the phenomena of classic epileptic paroxysms, will be adhered to throughout the following text.

#### CLINICAL PICTURE OF STATUS.

Usually one seizure of the grand mal type follows another of the same character a few minutes or seconds apart. Generally the attacks occur with an interval of one-half hour or a full hour at the onset. Each attack is complete and separate from its predecessor, keeping the peculiar individuality, common to each case of epilepsy. In Jacksonian, or better, partial epilepsy, the single seizure of the status holds to a distinct order of invasion, so long as exhaustion is not extreme and the definite order of muscular involvement is continued throughout the status. At first, consciousness is completely regained between paroxysms; a little later, as the periods between attacks shorten, consciousness is but partly regained, and finally the comatose state is not rallied from between attacks and the stupor slowly deepens into profound coma. In all cases in which a definite order of muscular involvement obtains, the subsequent coma is less profound and the status in consequence is less severe. As the attacks culminate in their greatest frequency, the period of rest between convulsions may be entirely omitted and some one part of the body may remain continuously in spasm; the part last involved in convulsion not ceasing from agitation before the muscles engaging in the initial stage of the next paroxysm begin again to sweep the rounds of the muscular invasion of the subsequent fit. The spasm may be incessantly clonic, or there may be a slight lessening of paroxysmal

intensity, thus marking the end and the beginning of isolated discharges; this overlapping is almost always seen in the climax of the convulsive stage of fatal status. With the increasing frequency of attacks the paroxysms usually diminish in intensity; the tonic period, if present at the beginning, may be obviated or omitted entirely in the advanced status. The paroxysms at the end of the convulsion may be localized to a single muscle or a small group of muscles. Generally in status composed of fulminant convulsions, of general and simultaneous involvement, the end of the convulsive stage sees only slight general or fibrillary tremors throughout the whole body. As the exhaustion increases after the first few attacks there is elevation of temperature, increased pulse rate and respiratory frequency. The pulse and temperature may surmount to a great height, the temperature to  $107^{\circ}$  or  $108^{\circ}$  F., and pulse to 160 or 200 per minute. At last the convulsions lessen in frequency and the stuporous stage is ushered in with the coma of collapse, which picture is analogous to that of the coma of adynamic fever, such as typhoid. This state is but the resultant exhaustion from the convulsive stage; exhaustion, as it were, being piled upon exhaustion. The mouth is foul, the tongue is dry and fissured, and the skin is covered with cold clammy sweat; swallowing becomes difficult or impossible. The urine is usually voided and stools may be passed involuntarily.

The patient may die of the asphyxia in the paroxysms, although as a general rule he passes a few hours in profound coma, in which stage, until death or convalescence, slight convulsive tremors may occasionally occur. Such convulsive phenomena are but mere phantoms of the former severe convulsions. Therefore one sees how purely arbitrary the clinical division of status into two stages may appear; in the one convulsion, and in the other coma predominates.

All the deep and superficial reflexes are abolished in the coma; the respiration becomes loud, noisy and stertorous in character; the temperature and pulse may undergo marked alteration depending upon the frequency and intensity of the foregoing symptoms. Death may terminate the stuporous stage at any time. If recovery is to occur, coma wears away, and is slowly replaced by stupor which in turn may be followed by mild delirium or hallucinations, which semi-exhausted state is finally replaced by a more

or less rapid convalescence and the patient resumes the pre-status condition in a week or ten days. Generally, if recovery does not follow more or less promptly, a low muttering delirium supervenes, extensive sloughing of the nates follows and life itself is more or less suddenly terminated. The foregoing constitutes the usual clinical picture of a case of typical status epilepticus.

*(To be continued.)*

## THE OBJECT TO BE ATTAINED BY AN ORGANIZATION OF ASSISTANT PHYSICIANS.<sup>1</sup>

By A. P. OHLMACHER, M. D.,

*Superintendent of the Ohio Hospital for Epileptics, Gallipolis, Ohio.*

It impresses me as a very gratifying compliment to meet with you on this occasion the object of which, as I understand it, is to perfect an organization of the Assistant Physicians in the State hospitals of Ohio. Organization is the order of the day in civilized society. Our medical profession has at last awakened to its importance and in each principal city of Ohio, in the State at large, and in the whole United States, physicians are banding for the purpose of advancing their common interests. Why, therefore, should not the physicians in the State hospitals of Ohio unite into a compact body for similar purposes? Personally I have long been impressed with the desirability of an association such as is contemplated in this meeting, and I am pleased to be given this opportunity of publicly endorsing the plan.

Numerically the Assistant Physicians are the strongest medical factor in the State hospitals of Ohio. For the proper administrative and medical conduct of the State hospitals, your group of doctors is indispensable. There are many advantages not now enjoyed by you that could be attained were you to make properly directed organized effort. Therefore, I counsel you to organize, and, because of your number, and because of the importance of your work in the State hospitals, I predict success for your Association.

A number of phases indicating the benefits to be secured by your Association have already been mentioned. I shall, therefore, venture to outline briefly what, to my mind, are some of the possi-

<sup>1</sup> Read at the preliminary meeting for organization of the Association of Assistant Physicians of the Ohio State Hospitals, July 16, 1903, held at the Columbus State Hospital.

bilities in the way of medical-scientific advancement which, above all else, should be the ultimate aim of your confederation.

At the outset, I am compelled to make the confession that the strictly medical work in the hospitals of Ohio is, relatively, on a very low plane. By this I mean that considering the enormous, almost unlimited possibilities afforded by these hospitals, and the results attained, the medical work is far below that found in other medical establishments, as, for instance, in well-conducted public or private general hospitals, or even in good private special hospitals. Ponder for a moment on this statement: Ohio has 7 principal State hospitals populated by approximately 8000 individuals sick in mind or body, cared for by about 40 physicians, at an annual cost, for maintenance alone, of nearly \$2,000,000. And still we can practically count with the fingers of one hand the contributions of the last year to the advancement of medical knowledge from all this aggregation of material for medical research, of possible workers, and of pecuniary resources. Is not the spectacle a sad one? And need we wonder that the medical profession as a whole looks askance at the medical work in our State institutions?

Consider also the aspect so tersely stated by the late and much-lamented chief executive of the institution in which we are now assembled, when he remarked that our State is spending two millions of dollars annually to provide "hotel accommodations" for its afflicted, and not one penny towards investigating the nature, cause, treatment, or prevention of the ills bringing to the State this enormous burden. Even from its financial side this absurd proposition makes so strong an appeal that every intelligent layman whose taxes aid in maintaining these hospitals sees its force the moment it is presented to him in this blunt, business-like form. Surely its sting must be appreciated by the many thousands of citizens of Ohio whose friends and relatives have found retreat in our hospitals, especially when they come to realize that all prospects of present benefit or recovery, or of prevention for future generations, rest upon the results of scientific study.

To you, the Assistant Physicians in these hospitals, nothing new is contained in the foregoing assertions. Most of you are young, active, and alert, and you have observed the conditions just portrayed. You have remonstrated against them and have wished

them rectified. Coming, as most of you have, to those institutions fresh with the enthusiasm of recent medical college life, you have by contrast keenly appreciated their poverty in scientific facilities, in scientific spirit, and in scientific work. Many of your fellows have been driven from the service through disappointment in the conditions; those of you who remain have been compelled to sacrifice high ideals and to helplessly witness the fleeting of golden opportunities. All of this is radically wrong. It is out of accord with the great progress made in medicine in other lines. It should be remedied, and in a propaganda for this purpose your contemplated Association should vigorously interest itself, since the initiative must be taken in the State hospitals themselves, and the Assistant Physicians, whose idealism still evokes enthusiastic response and effort, are the natural factors in forwarding this important reform.

It will be impossible in this limited address to go into details concerning the many and various lines in which the medicine in our State hospitals can be made more worthy the name. As topics for deliberation I wish merely to mention such as the establishment of a clinical and pathological laboratory under competent direction in each State hospital; the provision of a well-conducted general hospital equipped for first class medical, surgical and special work, together with a training school for nurses and attendants; the formation of a reference and working medical library; the appointment of a representative medical advisory board and consulting staff. More important than all of this, to my mind, is an opportunity for post-graduate study on the part of the Assistant Physicians, especially an opportunity for acquiring a training in the methods of scientific observation and research. This brings me to speak a moment about the scheme that has claimed my attention ever since coming in contact with our State hospitals, namely, that of founding a central institution for teaching and investigation. Most of you are, no doubt, aware that agitation in favor of this project is now actively going on and that the endorsement of the Ohio State Medical Association has been secured and a committee from this large and influential organization appointed to forward the movement.<sup>2</sup> Further elaboration of the plans of the proposed

<sup>2</sup> Some further ideas concerning the contemplated central laboratory will be found in my paper read before the Ohio State Medical Associa-

institute can best be postponed for a future occasion when your Association shall have become established. But even at this time, I wish to emphasize my conviction that a State Pathological Institute along the lines contemplated would be a most desirable agent for improving the medical work of our State hospitals. It would constitute the nucleus through whose educational influence each Assistant Physician in our hospitals who chose to enlarge his scientific horizon could do so, thus reviving in the separate hospitals the scientific spirit now so completely dormant. It would go far towards realizing the ideal of a post-graduate school for Assistant Physicians. With the training obtained in the Institute, each of the hospitals could be provided with at least one Assistant Physician competent to fill the position of Resident Pathologist. The methods of clinical and pathological research could be acquired, and under guidance of the Institute, Assistant Physicians of the various hospitals could prosecute original investigation upon the material within their own doors.

I repeat that I am confident, knowing the spirit that animates this preliminary step towards an Association of the Assistant Physicians of the Ohio State hospitals, that the scheme of a State Pathological Institute appeals to you as worthy of encouragement, and those of us interested in the movement feel assured that your hearty support and co-operation await us.

tion, June 4, 1903, entitled "The Laboratory Movement in Ohio's State Hospitals."

REPORT OF OBSERVATIONS MADE IN THE CLINIC  
OF DR. J. BABINSKI, PARIS.

WITH SPECIAL REFERENCE TO SOME NEW AIDS IN THE  
DIAGNOSIS AND TREATMENT OF NERVOUS AND  
MENTAL DISEASE.<sup>1</sup>

BY CHARLES GILBERT CHADDOCK, M. D.,

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Lumbar puncture, since its introduction by Quincke in 1890, has formed the subject of many clinical and diagnostic studies with reference to the cerebrospinal fluid and its alterations in nervous diseases, examination of which is made possible by the operation.

Examination of the cerebrospinal fluid obtained by lumbar puncture has been made systematically for a long time by Babinski in his clinical work, and besides giving valuable aid in the diagnosis of cases otherwise doubtful, this practice has led to certain very important results.

In one case of tubercular meningitis, repeated operations were followed by recovery, of which nothing else gave any hope.

The operation has now been performed in the clinic more than 1000 times without accident of any kind attributable to it. This is very important; for the possible gravity of the operation, concluded from reports of sudden death following it (Koernig, Braun, Fürbinger), has doubtless contributed to prevent its general or common use as a means of diagnosis.

<sup>1</sup> This report is the result of observations made in 1902 and 1903. If there be any errors, or any statements not perfectly in accord with Dr. Babinski's opinions, they are due to faulty observation by the writer, who is entirely responsible for them. The object of this report is to point out the diagnostic and therapeutic importance of certain discoveries due to the genius of Dr. Babinski, concerning some of which he has not yet expressed a final published opinion.

The operation<sup>1</sup> is followed by certain unpleasant symptoms in the majority of cases, especially in those that reveal no signs of organic disease of the nervous system (increased intracranial pressure, disease of the meninges). These symptoms consist of nausea, general malaise, and headache. Headache, (usually occipital), may be very severe and persist for several days. These symptoms rarely appear immediately after the operation—usually some hours later. After the operation the patient should remain in bed for several days; or until the headache has disappeared.

The daily use of lumbar puncture in diagnosis and the

<sup>1</sup> The technique of the operation is very simple, but a brief description of it may not be superfluous. The patient is placed in a sitting posture (or caused to lie on one side if necessary) and made to bend the head and trunk well forward. The point chosen for the insertion of the needle lies at the level of a line uniting the crests of the ilii, and slightly ( $\frac{1}{2}$  cm.) to one side of the median line; or at a point on a line uniting the two posterior inferior spines of the iliac crests, which corresponds with the space between the 5th lumbar vertebra and the sacrum. The needle should have a caliber of 1 mm. at least, and should be at least 9 cm. long for use in all cases; for the depth of insertion necessary varies from 2 cm. to 7 cm. with age and physical condition. The needle should be preferably of platinum, as tending to prevent such an unpleasant accident as breaking off a portion of the needle, which has occurred in an operation for the injection of cocaine with a steel needle, as a result of a sudden movement of the patient. After surgical preparation of the surrounding skin, the point chosen should be rendered anesthetic by a jet of ethyl chloride, or an injection of cocaine, and the needle should be directed slightly upward and inward towards the median line. That the needle has penetrated the canal is announced by the flow of fluid. If blood flows through the needle, wait a moment, and if it does not change to a clear fluid, withdraw the needle and insert at another point. Owing to difficulty in passing between the vertebrae it may be necessary exceptionally to try several points much higher than the point of election. The amount of fluid withdrawn varies with the condition and the object in view. Commonly 10 to 15 cc. may be allowed to flow—sufficient for examination and to induce the effects later described. Ordinarily the flow takes place drop by drop and is readily collected in a tube; if projected in a jet, there is abnormal increase of intracranial pressure. The pressure can be measured if desirable by attaching the needle with a rubber tube to a manometer (normal variation from 50 to 150 mm. of water, reclining; higher in the sitting position). On withdrawal of the needle the puncture should be sealed with a collodion dressing. There is practically no pain attending the operation.

simultaneous study of voltaic vertigo in all patients led to the discovery of facts of both diagnostic and therapeutic value.

Brenner discovered the fact that when a galvanic current is made to pass through the head, an electrode on each side, subjectively a sensation of vertigo is induced, objectively the head and body incline towards the positive pole. Erb attributed this effect to the influence of the current on the cerebellum.

Babinski published the first results of his study of voltaic vertigo in 1901,<sup>3</sup> and in 1902,<sup>4</sup> some additional notes. Since, his studies of this phenomenon and its variations have added many new facts of importance that render knowledge of it much more precise.

Experiments on pigeons have shown that electric stimulation of the semicircular canals directly causes a variation of movement of the head, dependent upon the pole applied to the canals. When the negative pole is applied to the canals (or any one of them) on one side, the head turns to the opposite side; when the positive pole is applied to the canals the head turns to that side. The experiment is made by exposing the canals and using a handle carrying the two wires, which at the extremity are exposed and separated by a short space, so that when one pole is applied to the canals the other can be applied to the skin in the immediate vicinity of the wound. Thus stimulation is confined to one side and practically limited to the canals, and the result of the experiment may be taken as demonstrating that each pole exercises a specific influence. That the normal combined effect of the two poles applied on opposite sides, is turning of the head towards the side of the positive pole, since the positive pole by affecting the canals on its side causes a movement in its direction, and the negative pole by affecting the canals on its side, causes a movement towards the opposite side.

The conclusion that voltaic vertigo is due to the effect of the galvanic current on the semicircular canals indicated by this experiment, is practically definitely demonstrated by study of its

<sup>3</sup> De l'influence des lésions de l'appareil auditif sur le vertige voltaique, Soc. de Biologie, 1901, p. 77.

<sup>4</sup> Sur la valeur sémiologique des perturbations dans le vertige voltaique, La Rev. Neurologique; Comptes rendus de la Société de Neurologie de Paris (séance du 15 mai, 1902).

disturbances in human beings, and variations of it that follow lumbar puncture with withdrawal of a few cubic centimeters of fluid, as practised by Babinski.

In his published notes on voltaic vertigo, Babinski's<sup>8</sup> observations show that "unilateral voltaic vertigo" is indicative of unilateral ear disease; that *absence* of voltaic vertigo indicates bilateral auricular lesions. The lesions may be slight or marked. Unilateral vertigo is usually towards the side of evident auricular disease; sometimes (rarely) towards the ear apparently normal. A movement of the head backwards may replace normal voltaic vertigo, with absence of *subjective* vertigo when both ears are diseased.

More recent studies have revealed an additional phenomenon due to galvanization of the head—a movement of *rotation* of the head towards the positive pole.

Babinski's method of procedure is as follows:

The points of election for the application of the electrodes lie in front of the tragus on each side at the same level. The electrodes should be of such size or so applied as to limit the contact to a small area in front of each tragus. The current should be gradually increased from zero. Normally the objective movement of vertigo appears with a current varying from 1 ma. or less to 5 or 6 ma.; if 10 or more ma. be required to induce movement it may be said that an abnormal resistance exists. Normally, with an electrode at each point of election (same level), and with a moderate current, the patient experiences a sense of vertigo, and the head inclines laterally towards the positive pole, whether placed to the right or the left. The movement of inclination continues during the passage of the current, and the head returns to its original position instantly when the current is broken. If the current be gradually increased the lateral inclination may increase and end by a fall to that side.

The application of the electrodes at the same level has been shown by Babinski not to be a matter of indifference.

Normally, with one electrode at or above the point of election on one side, and the other at a point below the point of election on the opposite side, instead of a movement of inclination, the

<sup>8</sup> Loc. cit.

head describes a movement of *rotation* towards the positive pole (the face considered as the part determining the point of departure and direction of rotation). Rotation, like inclination, varies normally from right to left with application of the positive pole on the right or left side. Rotation occurs when the current must theoretically follow a line oblique with relation to the perpendicular axis of the body. The examination is made with the patient seated and facing the examiner.

The abnormal variations of voltaic vertigo observed are numerous:

1. Increased resistance requiring a strong current.
2. Absence of voltaic vertigo, possibly with a backward movement of the head.
3. Unilateral inclination and rotation.
4. Unilateral inclination, absence of rotation.
5. Bilateral inclination, absence of rotation.
6. Bilateral inclination, unilateral rotation.
7. Bilateral rotation, unilateral inclination.
8. Bilateral rotation, absence of inclination.
9. Resistance for the abnormal types of movement.

Usually inclination and rotation are simultaneously affected, i. e., unilateral inclination occurs with unilateral rotation towards the same side. Unilateral inclination is usually towards the side of apparent or subjective auricular disease, though not necessarily so. "In some cases of auricular disease voltaic vertigo is irregular, bilateral at certain moments, unilateral at others."<sup>\*</sup>

Experience has shown that in general the causes of alteration or suppression of voltaic vertigo are to be found in auricular lesions, which vary in intensity from mere mechanical interference with conduction to profound lesions of the middle or internal ear.

In a person presenting normal bilateral vertigo, mechanical closure of one ear may suffice to cause temporary unilateral vertigo. A plug of cerumen may cause unilateral vertigo, which changes to bilateral immediately on removal of the plug. Lesions, slight and serious, of the middle and internal ear, demonstrated by examinations made by specialists, cause distur-

\* Babinski, loc. cit.

bances of voltaic vertigo—resistance, absence, unilaterality—depending on seat, intensity, etc.

In a case of intracranial tumor, voltaic vertigo was found absent with a movement backward of the head when a strong current was applied. Lumbar puncture revealed great increase of intracranial pressure, the fluid being projected in a jet from the needle. The withdrawal of a large amount of fluid was followed by relief of headache and immediate restoration of normal voltaic vertigo. The operation was repeated several times, as fluid reaccumulated, always with the same result, until an operation for cerebral tumor was accepted.

This case shows that increased intracranial pressure disturbs voltaic vertigo, probably through disturbing intra-labyrinthic pressure.

In other cases in which lumbar puncture was done for purposes of diagnosis, if voltaic vertigo was found abnormal before the operation, it changed to the normal type *immediately* after withdrawal of a few cc. of cerebrospinal fluid, and that in cases in which there was no apparent increase of intracranial pressure. In cases in which voltaic vertigo was normal but required a certain strength of current to induce it, after lumbar puncture the reaction became more readily induced, even by a very feeble current.

Certain cases presenting an anomaly of reaction to the galvanic current presented also other objective signs and subjective symptoms of auricular disease; in some of these the anomaly of voltaic vertigo was the only objective sign of ear disease revealed subjectively in deafness, more or less marked on one or both sides, ear-noises (humming, whistling, sissing, etc.) in one or both ears, and aural vertigo (Ménière's syndrome).

In many of these cases, with the restoration of normal voltaic vertigo after lumbar puncture (withdrawal of 10 to 15 cc. of fluid), a striking change in the previous subjective symptoms was noted: *hearing was restored; ear-noises ceased.*

Since the discovery of the possible favorable effect of lumbar puncture on deafness, ear-noises, etc., many aural cases have been systematically examined (by a very competent aurist before and after lumbar puncture), and treated by the withdrawal of from 10 to 15 cc. of cerebrospinal fluid.

The results obtained are very remarkable. Some cases were operated on but once, in other cases the operation was repeated several times. In a few cases the improvement was definite and immediate after a single puncture; in others slight improvement gradually developed after the first operation and increased in extent after succeeding operations to a striking and most satisfactory degree.

Of all the forms of auricular disease subjected to this treatment, so-called "sclerosis" was least favorable; usually the result was *nil*.

The length of time deafness, etc., had existed seemed of no importance; after many years' duration of subjective symptoms, cure and improvement were obtained.

Up to the present time the proportion of ear cases cured or improved of those treated is very considerable, and the results are the more remarkable because the cases had in most instances been abandoned by aurists as hopeless.

The cure or improvement consists of restoration or increase of acuteness of hearing; or of diminution or disappearance of subjective ear-noises.

One case of Ménière's syndrome of several years' standing, presenting most annoying ear-noises, severe attacks of vertigo, etc., that caused incapacity, and that had been treated by several specialists of repute unsuccessfully, was almost immediately relieved of all symptoms, and this state has now been maintained so long that the patient may justly be said to be cured.

Several other cases have been carefully followed for months, and cure or improvement has been maintained. Many other cases in which the result has been satisfactory are under observation to determine the question of the permanence of the results.

Two questions naturally arise: How does withdrawal of a few cubic centimeters of cerebrospinal fluid produce the results obtained? Why are the results practically permanent; if as seems probable the factor in producing them is a temporary lowering of intracranial pressure?

In the present state of knowledge, it would be rash to offer in reply anything more than hypotheses in explanation of the facts.

Possibly the sudden lowering of intracranial pressure disturbs intra-vestibular pressure, which acts as a sudden stimulus to dormant or hypo-functioning nerve-cells and awakens them to continued reactivity (Babinski).

Possibly for some reason intra-vestibular pressure has increased to such a degree that the nerve-cells are paralyzed, and sudden lowering of intracranial pressure lowers intra-vestibular pressure to a normal degree, restoring the function of the nerve-cells, and the new condition remains permanent.

Remembering that very slight objective auricular lesions may cause grave disturbance of functions and of voltaic vertigo, it seems probable that very slight disturbances of normal physical conditions in the internal ear are capable of inducing marked subjective symptoms (deafness, noises) and objective alteration of voltaic vertigo; that possibly alteration of intracranial pressure may have the effect to influence the circulation in the internal ear and restore a normal condition.

Though we are unable to explain the results obtained, they are none the less valuable and remarkable.

It should be added that the possible influence of "suggestion" was most rigorously excluded.

The practical applications of Babinski's discoveries in relation to voltaic vertigo and the effect of lumbar puncture on deafness and ear-noises are primarily of great value to the aurist, and secondarily to the neurologist and alienist; besides they will prove of great interest to the physiologist.

It should be determined what relation exists between the absence of voltaic vertigo and the absence of normal vertigo on the turn-table, so frequent in deaf-mutes,<sup>7</sup> with a view to discovering some possible diagnostic indication.

Disturbance of voltaic vertigo is a sign of material auricular disease, and it may be the only objective sign of disease of the internal ear. Thus it may prove of value in distinguishing hysterical deafness from that due to a material cause.<sup>8</sup>

Alteration of abnormal voltaic vertigo after lumbar puncture is a certain sign of the material basis of the primary disturbance.

<sup>7</sup> W. James, *The American Journal of Otology*, 1882, Vol. IV, p. 239-254.

<sup>8</sup> Babinski, loc. cit.

Abnormal voltaic vertigo may offer secondary aid in the diagnosis of intracranial tumors.

Auricular vertigo may be mistaken for epilepsy, especially if, as is often the case, the diagnosis must rest on a history given by the patient. In such a case, examination of voltaic vertigo may prove a very valuable objective auxiliary in diagnosis.\*

Ocular vertigo may be distinguished from auricular vertigo much more surely by means of examination of voltaic vertigo. This aid is the more valuable because in some cases auricular vertigo presents itself most strikingly by disorder of movements of the eyes (nystagmus with the eyes closed<sup>10</sup>) which might cause a diagnostic error.

Pollak's<sup>11</sup> statement that voltaic vertigo is wanting when the labyrinth is destroyed is probably correct; but it is now proved that absence of voltaic vertigo does not prove that the labyrinth is destroyed; however, want of restoration of voltaic vertigo after lumbar puncture would strengthen such an opinion.

Many cases of agoraphobia, claustrophobia, etc., are in reality cases of abortive auricular vertigo in which the objective and subjective symptoms of vertigo are slight or wanting, and the mental sensation of anguish is prominent. The value of the examination of voltaic vertigo in such cases is evident as a possible means of determining the exact nature of them.

Certain hysterical accidents (paryses, anesthesias, etc.) may sometimes be traced to unilateral auricular disease of which the patient may be unaware, but which the galvanic current reveals.

In insanity with auditory hallucinations, the electric examination is clearly indicated, whether there be objective signs of auricular disease or not; and if a disturbance of voltaic vertigo be found, lumbar puncture is indicated. For in many cases of auditory hallucination we cannot determine positively what part is played by ear-noises and possible disease of the internal ear.

\* The writer recalls a case presented to him in 1902, with a diagnosis of epilepsy, in which unilateral vertigo caused examination of the ears, and transfer of the patient to the ear clinic for treatment of an unsuspected otitis media of one ear.

<sup>10</sup> Bonnier, L'oreille.

<sup>11</sup> Pollak, Pflüger's Arch. f. Physiol., Band LIV, 1893, p. 188.

in the genesis and continuance of auditory hallucinations; we cannot be sure that hallucinations are not illusions.

The importance of these discoveries to the aurist is so evident that they call for no discussion.

With the accumulation of proof that lumbar puncture with the withdrawal of a small amount of cerebrospinal fluid is practically a harmless procedure, it may be confidently predicted that this means of diagnosis and treatment will be soon more commonly employed than heretofore. Soon, no doubtful psychiatric or neurologic diagnosis will be considered complete without an examination of the cerebrospinal fluid, if there be a question of organic disease of the nervous system, as there is very frequently in insanity.

With repeated demonstration of the curative effect of lumbar puncture in auricular disease, the aurist will not hesitate to employ this harmless measure in all cases of disease of the internal ear that prove refractory to other means of treatment. "If it restore hearing in only one case in a hundred, its utility is demonstrated." (Babinski).

We may hope that continued and more generalized study will finally offer us a satisfactory explanation of the irregularities of voltaic vertigo, and of the effects of lumbar puncture on the auricular functions.

Paris, July, 1903.

## American Medico-Psychological Association

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PROCEEDINGS OF THE FIFTY-NINTH ANNUAL MEETING.

TUESDAY, MAY 12, 1903.

### FIRST SESSION.

The Association convened at 10 o'clock a.m., in the Banquet Room of the Shoreham Hotel, Washington, D. C., and was called to order by the President, Dr. G. Alder Blumer, of Providence, R. I.

The President of the Association introduced the Honorable H. B. F. MacFarland, President of the Board of Commissioners of the District of Columbia, who welcomed the Association to the District of Columbia in the following words:

*Mr. President, Ladies and Gentlemen.*—I have the honor of welcoming you on behalf of the executive government of the District of Columbia, the Board of Commissioners, and in its behalf I offer you a most hearty welcome here. We are very glad that you have come again—for I understand that this is not by any means your first visit to Washington, and we are hopeful that you will continue to come. We think indeed that it would be wise of you to make this your annual meeting place. Certainly it must be delightful to come here away from the clash and roar and smoke of the commercial city. For even you, after your studies of nerves, must be delighted to come to a place where we have no nerves; where the wicked cease from troubling and the weary are at rest. And, too, it must be particularly delightful for you to come to Washington just at this time of the year, for this is our most beautiful month and corresponds with Lowell's "Month of June." At this time, when the Capital puts on its fairest dress and its fairest smile we are particularly glad to have visitors come here, and then, as I said, I think you will find rest in beauty, rest in the calm of the Capital.

I was reading in the Washington Post this morning that our friend Doctor William T. Harris, in an address before the Academy of Medicine yesterday, said that he used to have very worn down nerves—that of course was when he lived in another city—and that he was accustomed to betake himself, to cure his insomnia, to the Aristotle Society. He

explained afterward that he took a glass of beer at each of those meetings and that soothed him into a calm. Now in Washington it is not necessary to attend the meetings of the Aristotle Society or to take even a glass of beer in order to have calm and to sleep well. This is the place where you may have all the rest that you need.

I do not need to say to you, I am sure, that we have the greatest sights and the most beautiful city perhaps in the United States. You will of course be especially interested in the fine hospital for the insane—St. Elizabeth—which is just across the Eastern Branch of the Potomac on a hill looking down upon the Capitol. It is here that our friend Doctor Richardson has worked so successfully that we feel sure he will accomplish even greater things. We are proud of what is being done there. St. Elizabeth does not belong to the District of Columbia, for we pay only for the patients we send there. It is a United States institution, so I can say with perfect freedom that we are very proud of the work that is being done there.

We are all deeply interested in the work you gentlemen are engaged in, for it is a subject that must have a special interest for every human being, and we who are on the outside note with the greatest interest and satisfaction every advance that is made. We realize that you have made in the treatment of your subject at least as much progress as has been made in other departments of scientific work.

I read last night the words that Shakespere wrote three hundred years ago when he made the old Scotch tyrant inquire:

"Canst thou not minister to a mind diseased,  
Pluck from the memory a rooted sorrow,  
Raze out the written troubles of the brain,  
And with some sweet oblivious antidote  
Cleanse the stuff'd bosom of that perilous stuff  
Which weighs upon the heart?"

And the physician has to say:

"Therein the patient  
Must minister to himself."

Now while there is profound philosophic truth in that, we have now come to know that the physician can do great things even for that patient with the "mind diseased," and therein lies great hope, and satisfaction for all of us, even those of us who know least about the details of what has been done.

I congratulate you all upon what has been done by this Association, and I welcome you most heartily to the National Capital. (Applause.)

**THE PRESIDENT.**—You will notice, ladies and gentlemen, that wherever the Association meets those who are in charge of the arrangements are never satisfied with a welcome of the ordinary

kind. We are to be welcomed a second time by General George M. Sternberg, and I will now call upon the General for an address.

GENERAL STERNBERG spoke as follows:

*Mr. President, Ladies and Gentlemen.*—After listening to the welcoming address of our Commissioner you will hardly care to have me occupy much time, especially in view of the very interesting programme which you have. I dare say you are all eager to get to work on that programme, but I may say that in behalf of the medical profession of this city I am very glad indeed to welcome you here. We have, I think, a profession fully up to the standard of other large cities.

Just one word with reference to Washington. You were here some ten years ago and many of you know what a beautiful city we have. For this we owe something to the Honorable Commissioner who, during the past three years, has been at the head of the city government, and who has done everything in his power to promote the interests of the citizens of this city. One of the latest of his achievements has been the securing of regulations against expectoration upon the sidewalks and in public vehicles. (Applause.) There seems to have been considerable conservative opposition to this measure which certainly would not have been carried but for him. In everything he has taken the most liberal view in regard to the sanitary interests of the city. When I go back to Washington as I saw it in 1861 and recall the struggling town with its unpaved and muddy streets, and compare it with the Washington of to-day, I realize what great progress we are making in all directions. Do you realize the progress that has been made in medical science during that time? But to enter upon that subject would take the entire time you have at your disposal. (Applause.)

THE PRESIDENT.—It would seem, ladies and gentlemen, that everything has been said that could be said to emphasize our welcome to Washington, but I am sure you will find that there will still remain something for General Wyman to say in bidding us welcome.

GENERAL WALTER WYMAN.—

*Mr. President, Ladies and Gentlemen.*—I have not prepared any formal address of welcome and I think you will excuse me for not doing so when I tell you that I have but just returned from attending the sessions of the American Medical Association in New Orleans, and those of you who remain here for this week will, I am sure, appreciate the condition of one who has just returned from a week at a medical convention. I have just come back and have not yet had time even to unpack my trunk, but came round here just as I am to bid you welcome on behalf of the Board of Visitors of the Government Hospital for the Insane at St. Elizabeth's. We are very proud of that institution and, I may add incidentally, of its superintendent, Dr. Richardson. (Applause.)

Some two years ago Congress, moved by the representations that were made to it by the then new superintendent, appropriated very nearly one million dollars for the purpose of doubling the capacity of the institution. We have there now some 2300 persons, and the buildings provided for by Congress are in course of erection. When they are completed there will be at least forty-eight buildings connected with the Government Hospital for the Insane. We shall be very glad to see all the members of the Association over there—either by personal visits or together.

I am informed by Doctor Richardson that on Friday afternoon at half past one there will be a lunch served to this Association, and I trust you will all take pains to be present as I am sure it will be worth your while. I trust that you will note the character of the new buildings that have been devised and particularly their arrangements and the organization of the hospital.

It seems to me that in dealing with such a large institution as this executive ability of the rarest kind is required not only in its medical administration but in the apportionment of the work and the facilities afforded. Of course there is first a general division between white and colored patients; then between male and female; then between those who are disturbed and those who are not. It was a marvel to me with what skill these divisions have been properly arranged for in the construction and laying out of these buildings which were provided for by Congress two years ago.

So that, gentlemen, we hope to see you over there, and so far as I may represent the medical service, certainly as a member of the Board of Visitors, I tender you a most hearty welcome. (Applause.)

THE PRESIDENT.—I am sure, ladies and gentlemen, that you will sanction my speaking when I say that we are all very grateful to these gentlemen for their treble welcome. We are all very grateful, I am sure, for the assertion that we shall find here a place to rest, for we all need rest in these strenuous times. I could not help thinking, as Commissioner MacFarland spoke, of the statement made not long ago by a brilliant newspaper man that "the only chance for rest and quiet in this world nowadays was in the time intervening between a strenuous day of death and a strenuous day of judgment." It appears, however, that there is an intervening place and that we can find here in Washington the rest we need so much. I will not further occupy the time of the Association except to add that we are all, I am sure, extremely grateful for the very warm welcome which has been accorded to us.

I now call for the report of the Committee of Arrangements.

## REPORT OF COMMITTEE OF ARRANGEMENTS.

DR. A. B. RICHARDSON.—Mr. President, and ladies and gentlemen, I regret that we have not much to report with reference to arrangements for our section. You all know that we meet here as a branch of the affiliated medical societies known as the Congress of American Physicians and Surgeons, and that a very considerable portion of the time of this Congress will be occupied by the general entertainments. There will be to-night a reception to the President of the Congress, Doctor Keen, at the Arlington Hotel, to which you are all invited, provided that you have associated yourself with the general Congress by contributing five dollars—I believe that is the amount—to the expenses of the Congress. As members of this Association you are of course entitled to general membership in the Congress, but my understanding is that to bear the general expenses of the Congress this five dollar assessment is made and that admission to this reception to the President of the Congress to-night is extended only to those who are affiliated with the general Congress in this manner.

There will also be a general smoker at the New Willard Hotel on Thursday evening. Outside of this you will note from the programmes that the time is tolerably well occupied, for each individual section seems to have announced that it will hold luncheons or dinners and the like on Tuesday, Wednesday or Thursday. So we at the Government Hospital for the Insane thought it would be to the advantage of the Association if we deferred our special lunch until Friday.

I hope all of you will be able to remain until the close of the session and that you will all take time enough to come to the Hospital and at least enjoy the clear atmosphere that we have at that high elevation. There, as here, this is the most lovely part of the year, and I am sure you will all enjoy an afternoon at the institution. Our purpose is to serve an informal luncheon at 1.30 or thereabouts and then to devote as much of the afternoon as you desire to an inspection of the Hospital.

As General Wyman said, we are making vast improvements there and spending about a million and a half dollars, and we shall be glad to show you the additions that are being made and

the purpose for which each building is intended. Perhaps you may be able to gather a few ideas from it, as the constructive work is particularly interesting and there is always something new about it. If any of you care to make a special inspection, we shall have officers in charge there all day who will be glad indeed to show you about and let you see any special features you may be interested in.

I do not know that there is anything further to be said. We do not deem it wise to arrange for a set banquet, for we thought that at this season of the year a little outing of this kind would meet your approval in preference to an evening spent at the banquet table.

If there is any information about the city or the points you desire to visit needed, I shall be very glad to give it if I am able.

The Secretary then made some announcements and stated that a letter of regret had been received by him from Doctor Chapin; also a letter from Doctor Toulouse expressing to the Association his thanks for the honor the Association has conferred upon him last year in electing him as an honorary member.

#### REPORT OF THE COUNCIL.

The Secretary reported that the Council had recommended the following for membership in the Association:

*For Honorary Membership*.—Wesley Mills, M. A., M. D., Montreal, Que.  
*For Active Membership*.—Jas. B. Ayer, M. D., Boston, Mass.; Martin W. Barr, M. D., Elwyn, Pa.; I. W. Blackburn, M. D., Washington, D. C.; W. P. Crumbacker, M. D., Independence, Ia.; Chas. G. Dewey, M. D., Boston, Mass.; Robt. E. Doran, M. D., Sonyea, N. Y.; Augustus A. Eshner, M. D., Philadelphia, Pa.; Geo. W. Foster, M. D., Bangor, Me.; F. R. Goenaga, M. D., San Juan, Puerto Rico; V. L. Goodwill, M. D., Charlottetown, P. E. I.; Isham G. Harris, M. D., Poughkeepsie, N. Y.; Alfred T. Hobbs, M. D., Guelph, Ont.; Joseph B. Howland, M. D., Gardner, Mass.; Arthur C. Jelly, M. D., Boston, Mass.; Walter H. Kidder, M. D., Oswego, N. Y.; F. W. Langdon, M. D., Cincinnati, O.; G. A. MacCallum, M. D., London, Ont.; Emma W. Mooers, M. D., Waverley, Mass.; Frank P. Norbury, M. D., Jacksonville, Ill.; F. Savary Pearce, M. D., Philadelphia, Pa.; Arthur Sweeney, M. D., St. Paul, Minn.; Theodore I. Townsend, M. D., Utica, N. Y.; Sidney D. Wilgus, M. D., Brooklyn, N. Y.

*For Associate Membership*.—Charles Lewis Allen, M. D., Trenton, N. J.;

Clayton G. Andrews, M. D., Waterbury, Vt.; Geo. G. Armstrong, M. D., Buffalo, N. Y.; Chester Lee Carlisle, M. D., Ward's Island, N. Y.; Isador H. Coriat, M. D., Worcester, Mass.; Harry Andrews Cotton, M. D., Worcester, Mass.; Cornelius DeWeese, M. D., Washington, D. C.; Frank L. Grosvenor, M. D., Ward's Island, N. Y.; Seymour DeWitt Ludlum, M. D., Frankford, Pa.; William McDonald, M. D., Providence, R. I.; William H. Montgomery, M. D., Sonyea, N. Y.; Wm. T. Shanahan, M. D., Sonyea, N. Y.; Edward A. Sharp, M. D., Central Valley, N. Y.; Alton S. Smiley, M. D., Ward's Island, N. Y.; Henry M. Swift, M. D., Hathorne, Mass.; Arno C. Voigt, M. D., Retreat, Pa.; Chas. S. Walker, M. D., Concord, N. H.; Franklin S. Wilcox, M. D., West Newton, Mass.

**THE PRESIDENT.**—The names reported by the Council will be placed before the Association to be ballotted upon at a subsequent meeting, as provided for by the Constitution.

The Council also reported that it recommended that dues for active members for the coming year be placed at \$5.00 and for associate members at \$2.00.

On motion of Dr. Hurd the report of the Council as to applicants for membership was accepted and as to dues accepted and adopted.

#### REPORT OF THE TREASURER.

The following report was read by the Treasurer:

C. B. BURR, Treasurer, in account with American Medico-Psychological Association.

	DR.	CR.
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May 1, 1902. To Balance ..... \$1,149.74

May 1, 1903. To Dues from Active Members ..... 1,300.10

To Dues from Associate Members ..... 160.15

To Interest ..... 33.83

To Sale of Transactions ..... 16.25

To Sale of Gummed Lists ..... 5.00

To Sale of Blackburn's Autopsies ..... 1.25

Printing Transactions, Lists of Members,		
Reprints .....	\$ 629.98	
Mailing Cases .....	18.00	
Express on Reprints and Transactions..	46.39	
Stationery, Pens, Miscellaneous Print- ing, Programmes, Ballots, etc.....	104.10	
Stenographer and Clerical Hire.....	180.52	
Secretary's Expenses, Montreal .....	2.25	
Appropriation Journal of Insanity .....	200.00	
Postage .....	130.00	
Telegraphing .....	4.94	

Cuts for Papers of Drs. Dent, Wright and Haviland .....	34.50
Balance to New Account:	
Genesee County Savings Bank, \$932.21	
First National Bank, Savings Account .....	323.50
First National Bank, Commer- cial Account .....	59.93
	1,315.64
	\$2,666.32
	\$2,666.32

(Applause.)

On motion of Dr. Richardson the report of the Treasurer was referred to the Auditors.

The following report from the editors of the AMERICAN JOURNAL OF INSANITY, was read by Dr. Hurd managing editor.

Baltimore, May 9, 1903.

*To the American Medico-Psychological Association:*

Gentlemen.—The past year in the history of the AMERICAN JOURNAL OF INSANITY has been a prosperous one. The cost of publishing the JOURNAL has been \$2641.46, not including the appropriation of \$200.00 received from the Treasurer of the Association for proofreading, editing manuscripts, and the like. The receipts from all sources have been \$2861.01. The balance of cash on hand is \$219.55. There is due and collectable on open accounts, mainly for advertising, \$307.91, and for subscriptions about \$150.00.

The contents of the JOURNAL for the past year have made a volume of nearly 750 pages, and the material has been varied and much of it of a high character. In January last, with a view to improving the character of the JOURNAL, a consultation of the editors was held in New York. As the result of this consultation it was decided to ask Dr. Adolf Meyer, the Director of the New York Pathological Institute, to take charge of the Department of Pathology, and to request Dr. Richard Dewey, of the Milwaukee Sanitarium, to assume charge of the Department of Therapeutic Notes. Both of these gentlemen have consented to assume the duties thus assigned them, and the Editorial Board confidently expects that the JOURNAL will be strengthened in these two important departments.

In behalf of the Editorial Board, I desire to express my thanks to the members of the Association who have contributed so much during the past year to the excellence of the JOURNAL. The JOURNAL is growing in subscription and in influence, and is an increasing power in advancing the specialty of insanity.

Vouchers for all expenditures are presented, and I would ask that they be submitted to the auditors for examination and report at this meeting.

Respectfully submitted, HENRY M. HURD,  
Managing Editor in behalf of the Editorial Committee.

THE PRESIDENT.—Although I am myself, ladies and gentlemen, a coeditor of the AMERICAN JOURNAL OF INSANITY, I think in view of the fact that nearly all of the work is done by Doctor Hurd there will be no immodesty on my part if I congratulate the Association upon the excellence of the report which has just been made. I do not suppose that any of you have the slightest conception of the amount of labor and detail which Doctor Hurd puts into the AMERICAN JOURNAL OF INSANITY. I mention this that you may realize as I do how great is our obligation to Doctor Hurd for his willingness to continue in this great work. What is the pleasure of the Association with reference to the report of the Editor of the AMERICAN JOURNAL OF INSANITY?

THE SECRETARY.—I move that it be accepted and referred to the Auditors.

The motion prevailed.

THE PRESIDENT.—The next order of business is the appointment of a Nominating Committee. I announce as such committee, Dr. Arthur F. Kilbourne, of Minnesota, Dr. Michael Campbell of Tennessee, and Dr. George A. Smith of New York.

There will now be a recess for the registration of members.

The following members were present during the whole or a portion of the meeting.

Adams, Geo. S., M. D., Superintendent Westborough Insane Hospital, Westborough, Mass.

Allison, H. E., M. D., Medical Superintendent, Matteawan State Hospital, Fishkill-on-Hudson, N. Y.

Andrews, Clayton G., M. D., First Assistant Physician, Vermont State Hospital for the Insane, Waterbury, Vt.

Ayer, James Bourne, M. D., Massachusetts State Board of Insanity, 518 Beacon St., Boston, Mass.

Baker, Jane Rogers, M. D., Superintendent, Chester County Hospital for the Insane, Embreeville, Pa.

Bancroft, Charles P., M. D., Superintendent, New Hampshire State Hospital, Concord, N. H.

Barrett, Albert Moore, M. D., Pathologist, Danvers Insane Hospital, Hathorne, Mass.

Berkley, Henry J., M. D., 1305 Park Ave., Baltimore, Md.

Beutler, W. F., M. D., Superintendent, Asylum for Chronic Insane, Wauwatosa, Wis.

Blackburn, I. W., M. D., Pathologist, Government Hospital for the Insane, Washington, D. C.

Blackford, Benjamin, M. D., Superintendent, Western State Hospital, Staunton, Va.

Blumer, G. Alder, M. D., Medical Superintendent, Butler Hospital, Providence, R. I. (President.)

Brown, Sanger, M. D., Attending Physician, Cook County Hospital, St. Luke's Hospital, St. Elizabeth's Hospital, 100 State St., Chicago, Ill.

Brown, W. Stuart, M. D., Physician-in-Charge, Sanford Hall, Flushing, New York, N. Y.

Brush, Edward N., M. D., Physician-in-Chief and Superintendent, Sheppard and Enoch Pratt Hospital, Towson, Md.

Bryant, Lewis L., M. D., City Physician, Cambridge, Mass.

Buchanan, J. M., M. D., Superintendent, East Mississippi Insane Hospital, Meridian, Miss.

Burgess, T. J. W., M. D., Medical Superintendent, Protestant Hospital for the Insane, Montreal, Que.

Burr, C. B., M. D., Medical Director, Oak Grove Hospital for Nervous and Mental Diseases, Flint, Mich. (Secretary and Treasurer.)

Busey, A. P., M. D., Medical Superintendent, Colorado State Insane Asylum, Pueblo, Col.

Campbell, Michael, M. D., Superintendent, Eastern Hospital for the Insane, Knoxville, Tenn.

Clark, Daniel, M. D., Superintendent, Asylum for Insane, Toronto, Ont.

Clark, J. Clement, M. D., Superintendent, Springfield State Hospital, Sykesville, Md.

Clarke, C. K., M. D., Medical Superintendent, Rockwood Hospital, Kingston, Ont.

Cowles, Edward, M. D., Medical Superintendent, McLean Hospital, Waverley, Mass.

Crumbacker, W. P., M. D., Superintendent, State Hospital, Independence, Ia.

Dent, Emmet C., M. D., Medical Superintendent, Manhattan State Hospital West, Ward's Island, N. Y.

Dewey, Richard, M. D., Physician-in-Charge, Milwaukee Sanitarium, Wauwatosa, Wis.

Dewing, Oliver Morse, M. D., Medical Superintendent, Long Island State Hospital, King's Park, L. I., N. Y.

Dill, D. M., M. D., Superintendent, Essex County Hospital for the Insane, Newark, N. J.

Dold, Wm. Elliott, M. D., Physician-in-Charge, River Crest Sanitarium, Astoria, L. I., N. Y.

Doran, Robert E., M. D., First Assistant Physician, Craig Colony for Epileptics, Sonyea, N. Y.

Drew, Chas. A., M. D., Medical Director, State Asylum for Insane Criminals, State Farm, Mass.

Drewry, William Francis, M. D., Superintendent, Central State Hospital, Petersburg, Va.

Dunton, Wm. Rush, Jr., M. D., Assistant Physician, Sheppard and Enoch Pratt Hospital, Towson, Md.

- Durham, Albert, M. D., Assistant Physician, Bloomingdale Asylum, White Plains, N. Y.
- Elliott, Robt. M., M. D., Superintendent, Long Island State Hospital, Brooklyn, N. Y.
- Evans, Britton D., M. D., Medical Director, New Jersey State Hospital, Morris Plains, N. J.
- Eyman, Henry C., M. D., Medical Superintendent, Massillon State Hospital, Massillon, Ohio.
- Flood, Everett, M. D., Superintendent, Massachusetts Hospital for Epileptics, Palmer, Mass.
- Foster, L. S., M. D., Superintendent, Eastern State Hospital, Williamsburg, Va.
- Foster, G. W., M. D., Superintendent, Eastern Maine Insane Hospital, Bangor, Me.
- Franklin, Chas. M., M. D., Assistant Physician, Sheppard and Enoch Pratt Hospital, Towson, Md.
- Gorton, Eliot, M. D., Superintendent, Fair Oaks Sanatorium, Summit, N. J.
- Gundry, Alfred T., M. D., Resident Physician, Gundry Sanitarium, "Athol," Catonsville, Md.
- Gundry, Richard F., M. D., Member Board of Directors, Springfield State Hospital; Superintendent, The Richard Gundry Home, Catonsville, Md.
- Guth, Morris S., M. D., Superintendent and Physician-in-Chief, State Hospital, Warren, Penna.
- Guthrie, L. V., M. D., Superintendent, The West Virginia Asylum for Incurables, Huntingdon, W. Va.
- Hancker, Wm. H., M. D., Medical Superintendent, Delaware State Hospital, Farnhurst, Del.
- Harrington, Arthur H., M. D., Superintendent, New York Eye and Ear Infirmary, Second Ave. and 13th St., New York, N. Y.
- Hattie, W. H., M. D., Medical Superintendent, Nova Scotia Hospital, Halifax, N. S.
- Haviland, C. Floyd, M. D., Assistant Physician, Manhattan State Hospital East, Ward's Island, N. Y.
- Hill, Gershom H., M. D., Equitable Building, Des Moines, Ia.
- Hobbs, Alfred T., M. D., Medical Superintendent, Homewood Sanitarium, Guelph, Ont.
- Holley, Erving, M. D., Assistant Physician, Willard State Hospital, Willard, N. Y.
- Hoch, August, M. D., Pathologist and Assistant Physician, McLean Hospital, Waverley, Mass.
- Houston, J. A., M. D., Medical Superintendent, Northampton Insane Hospital, Northampton, Mass.
- Howard, Eugene H., M. D., Medical Superintendent, Rochester State Hospital, Rochester, N. Y.

Hurd, Arthur W., M. D., Medical Superintendent, Buffalo State Hospital, Buffalo, N. Y.

Hurd, Henry M., M. D., Editor *JOURNAL OF INSANITY*, Johns Hopkins Hospital, Baltimore, Md.

Jelly, George F., M. D., Chairman, Massachusetts State Board of Insanity, 69 Newbury St., Boston, Mass.

Keniston, James M., M. D., Assistant Physician, Connecticut Hospital for the Insane, Middletown, Conn.

Kilbourne, Arthur F., M. D., Superintendent, Rochester State Hospital, Rochester, Minn.

Knapp, John Rudolph, M. D., Assistant Physician, Manhattan State Hospital East, Ward's Island, N. Y.

Kunst, A. H., M. D., Superintendent West Virginia Hospital for the Insane, Weston, W. Va.

Lamb, Robert B., M. D., Medical Superintendent, Dannemora State Hospital, Dannemora, N. Y.

Lawton, S. E., M. D., Superintendent, Brattleboro Retreat, Brattleboro, Vt.

Logie, B. R., M. D., Senior Assistant Physician, Government Hospital for the Insane, Washington, D. C.

Lyon, Samuel B., M. D., Medical Superintendent, Bloomingdale Asylum, White Plains, N. Y.

Lyons, A. J., M. D., Superintendent, Second Hospital for the Insane, Spencer, W. Va.

McBride, James H., M. D., Pasadena, Cal.

McKee, James, M. D., Superintendent, State Hospital, Raleigh, N. C.

McNicholl, E. C., M. D., Medical Superintendent, Asylum for Insane, Cobourg, Ont.

Mabon, William, M. D., General Superintendent, Bellevue and Allied Hospitals, New York, N. Y.

Macdonald, A. E., M. D., Medical Superintendent, Manhattan State Hospital East, Ward's Island, N. Y. (Vice-President-elect.)

Macy, Wm. Austin, M. D., Superintendent, Willard State Hospital, Willard, N. Y.

Manton, W. P., Gynecologist, Eastern Michigan Asylum, Northern Michigan Asylum, St. Joseph's Retreat, 32 Adams Ave. W., Detroit, Mich.

Meredith, Hugh B., M. D., Superintendent, State Hospital for the Insane, Danville, Pa.

Meyer, Adolf, M. D., Director of the Pathological Institute, Ward's Island, N. Y.

Miller, J. F., M. D., Superintendent, State Hospital, Goldsboro, N. C.

Mooers, Emma W., M. D., Assistant Physician, McLean Hospital, Waverley, Mass.

Murphy, John B., M. D., Medical Superintendent, Asylum for Insane, Brockville, Ont.

Neff, Irwin H., M. D., Assistant Physician, Eastern Michigan Asylum, Pontiac, Mich.

- Noble, Alfred I., M. D., Assistant Superintendent, Worcester Insane Hospital, Worcester, Mass.
- Noble, Henry S., M. D., Superintendent, Connecticut Hospital for Insane, Middletown, Conn.
- Noyes, William, M. D., Superintendent, Men's Department, Boston Insane Hospital, Mattapan, Mass.
- Orth, H. L., M. D., Superintendent and Physician, Pennsylvania State Hospital, Harrisburg, Penna.
- Page, Charles W., M. D., Superintendent and Physician, Danvers Insane Hospital, Hathorne, Mass.
- Palmer, H. L., M. D., Medical Superintendent, Utica State Hospital, Utica, N. Y.
- Parsons, Ralph L., M. D., In Charge of Private Hospital, Greenmont-on-Hudson, Ossining, P. O., N. Y.
- Pilgrim, Chas. W., M. D., Medical Superintendent, Hudson River State Hospital, Poughkeepsie, N. Y.
- Pomeroy, Emmet H., M. D., Highland Park, Ill.
- Preston, R. J., M. D., Superintendent, Southwestern State Hospital, Marion, Va.
- Punton, John, M. D., Superintendent, Punton Sanitarium, Kansas City, Mo.
- Redwine, J. S., M. D., Medical Superintendent, Eastern Kentucky Asylum for the Insane, Lexington, Ky.
- Richardson, Alonzo B., M. D., Superintendent, Government Hospital for the Insane, Washington, D. C. (President-elect.)
- Riggs, C. Eugene, M. D., Professor Nervous and Mental Diseases, University of Minnesota, 595 Dayton Ave., St. Paul, Minn.
- Robertson, Frank W., M. D., General Superintendent, New York State Reformatory, Elmira, N. Y.
- Rogers, A. C., M. D., Superintendent, Minnesota School for the Feeble-Minded, Faribault, Minn.
- Rowe, George H. M., M. D., Superintendent and Resident Physician, The Boston City Hospital, Boston, Mass.
- Rowe, John T. W., M. D., Assistant Physician, Manhattan State Hospital East, Ward's Island, N. Y.
- Scribner, Ernest V., M. D., Medical Superintendent, Worcester Insane Asylum, Worcester, Mass.
- Searl, William A., M. D., Medical Superintendent, Fair Oaks Villa Home, Cuyahoga Falls, Ohio.
- Smith, G. A., M. D., Medical Superintendent, Manhattan State Hospital at Central Islip, Central Islip, L. I., N. Y.
- Smith, Stephen, M. D., New York. (Honorary.)
- Spratling, Wm. P., M. D., Superintendent, Craig Colony for Epileptics, Sonyea, N. Y.
- Tomlinson, H. A., M. D., Superintendent, St. Peter State Hospital, St. Peter, Minn.

Turner, Jno. S., M. D., Superintendent, North Texas Hospital for the Insane, Terrell, Tex.

Villeneuve, Geo., M. D., Medical Superintendent, St. Jean de Dieu Hospital for the Insane, Longue Pointe, Que.

Wade, J. Percy, M. D., Medical Superintendent, Maryland Hospital for the Insane, Catonsville, Md.

Wagner, Charles G., M. D., Superintendent, Binghamton State Hospital, Binghamton, N. Y.

Wentworth, Lowell F., M. D., Deputy Executive Officer, State Board of Insanity, 36 State House, Boston, Mass.

White, M. J., M. D., Medical Superintendent, Milwaukee Hospital for the Insane, Wauwatosa, Wis.

Wilsey, O. J., M. D., Physician-in-Charge, Long Island Home, Amityville, L. I.

Wolfe, Mary M., M. D., Resident Physician, Women's Department, Norristown State Hospital, Norristown, Penna.

Woodbury, Charles E., M. D., Superintendent, Massachusetts Hospital for Dipsomaniacs and Inebriates, Foxborough, Mass.

Woodson, C. R., M. D., Superintendent, State Hospital No. 2, St. Joseph, Mo.

Work, Hubert, M. D., Superintendent, Woodcroft Hospital, Pueblo, Colo.

Other visitors and guests of the Association were as follows:

C. F. Applegate, M. D., Superintendent, State Hospital, Mt. Pleasant, Ia.  
Horace H. Atherton, Esq., Trustee, Danvers Insane Hospital, East Saugus, Mass.

Smith Baker, M. D., Utica, N. Y.

Edith H. Barker, M. D., Pathologist, State Hospital, Norristown, Pa.

L. Pierce Clark, M. D., Consulting Neurologist, Manhattan State Hospital, Central Islip, L. I., N. Y., 62 W. 58th St., New York City.

Chas. L. Dana, M. D., New York City.

W. W. Fairon, M. D., First Assistant Physician, State Hospital, Goldsboro, N. C.

H. P. Field, Esq., Trustee, Northampton Insane Hospital, Northampton, Mass.

Samuel W. Hopkinson, Esq., Trustee, Danvers Insane Hospital, Bradford, Mass.

Hon. H. B. F. MacFarland, Commissioner of the District of Columbia, Washington, D. C.

John F. Mentzer, M. D., Trustee, Pennsylvania State Lunatic Hospital, Ephrata, Penna.

Harry W. Miller, M. D., Pathologist and Assistant Physician, Taunton Insane Hospital, Taunton, Mass.

J. M. Murdoch, M. D., Superintendent, State Institute for Feeble-Minded of Pennsylvania, Polk, Pa.

Flavius Packer, M. D., Resident Physician-in-Charge, Pavilion for the Insane, Foot East 26th St., New York, N. Y.

Miss Sara E. Parsons, Superintendent of Nurses, Adams Nervine Asylum, Jamaica Plains, Mass.

Reuben Peterson, M. D., Professor Obstetrics and Gynecology University of Michigan, Ann Arbor, Mich.

Alvin E. Pope, Esq., Superintendent, Section Charities and Corrections, World's Fair, St. Louis, Mo.

T. P. Satterwhite, M. D., Commissioner, Central Kentucky Asylum for the Insane, Louisville, Ky.

Arthur F. Shepherd, M. D., Superintendent, Dayton State Hospital, Dayton, Ohio.

Geo. M. Sternberg, Brig. Gen. U. S. A., Retired, 2144 Cal. Ave., Washington, D. C.

Chas. F. Taylor, Esq., Member Board of Commissioners, Central Kentucky Asylum for the Insane, 345 5th St., Louisville, Ky.

M. N. Voldeng, M. D., Superintendent, Cherokee State Hospital, Cherokee, Ia.

W. C. Woodward, M. D., Health Officer for District of Columbia, Washington, D. C.

Walter Wyman, Surgeon General, U. S. Public Health and Marine Hospital Service, Washington, D. C.

The Association reconvened at 11.15 a. m.

The President then read his address which was received with prolonged applause. (See AMERICAN JOURNAL OF INSANITY for July.)

DR. A. B. RICHARDSON.—Ladies and gentlemen, I am quite sure you will join with me in expressing our great satisfaction with the address of the President to which we have just listened, and in expressing to him the appreciation which we feel for the honor he has done us in that address, and the hope that his suggestions will reap a reward in a harvest of good work done. We all must appreciate with him the extent of the problem lying before us in attempting in some manner to curtail the evil of insanity.

As he has well said, it does not lie in the direction of the betterment of treatment for the insane. Indeed I question but what we may have been adding to the problem by the results of organized charity not only directly connected with the insane but by charity as related to all forms of defectives. The general result is that the survival of the unfit is extended in its influence while there has been neglect to a great extent at least of the proper education of the public as to the evils that flow from an unrestricted perpetuation of these defectives. They are nursed, pro-

tected, housed, brought to a procreative age and then turned loose on the community in large numbers, and as a result we have a constantly increasing class of defectives that must go on in a geometrical ratio perpetuating their kind, particularly,—as the President has shown—as they usually show a greater tendency to rear a proportionally larger family than the normal classes.

I am sure that the words the President has given us this morning will be fruitful as time goes on and that when these ideas are properly appreciated not only by ourselves but by the profession generally and by the more intelligent of the public they will bear fruit not only in legislation looking to the diminution of these evils but also in the more important work of making a public sentiment that will help to curtail and get at the fountain-head from which flows this stream of distress and unhappiness.

I want to make the motion that we thank our President for the very admirable and acceptable address which he has made to us this morning.

The motion unanimously prevailed.

DR. RICHARDSON.—I want to say just one word more, Mr. President, and that is as to the arrangements for visiting the Government Hospital on Friday. I will take it as a kindness if all who purpose coming will leave their names with the Secretary or stenographer between now and Thursday afternoon so that we may know something of the number we may expect. With regard to the method of reaching the hospital. If there is a sufficient number we can readily secure special cars that will come right to the door of this hotel and go directly to the hospital. That will be the most convenient way and I will see that the necessary arrangements are made. If there are not enough, you can take the car in front of the hotel and transfer to the Anacostia car at Ninth and F streets, by the old Patent Office building. Some few have already spoken to me about visiting the hospital. I shall be glad to be with them tomorrow, Wednesday, which is the time we shall have most leisure, and I think I can spend the afternoon with them.

Adjourned.

WEDNESDAY, MAY 13, 1903.

FIRST SESSION.

The meeting was called to order by the President at 10 a. m.

The applicants for membership favorably reported upon by the Council at yesterday's session were elected unanimously by ballot.

THE PRESIDENT.—I will now call for the report of the Nominating Committee.

DR. A. F. KILBOURNE.—The Nominating Committee reports as follows:

For President: A. B. Richardson, of Washington, D. C.

Vice-President: A. E. Macdonald, of New York.

Secretary and Treasurer: C. B. Burr, of Michigan.

Councilors: Thomas J. Mitchell, of Mississippi.

Chas. W. Pilgrim, of New York.

A. P. Busey, of Colorado.

Charles G. Hill, of Maryland.

Auditors: William Mabon, of New York.

J. M. Buchanan, of Mississippi.

THE PRESIDENT.—What shall be done, gentlemen, with the report of this committee?

DR. EVANS.—I move that it be accepted and adopted, and that the Secretary be directed to cast the ballot for the Association.

The motion prevailed and the Secretary cast the ballot as directed.

THE PRESIDENT.—The next report is that of the Auditors.

DR. BUCHANAN thereupon read the Auditors' report as follows:

*To the President and Members of the American Medico-Psychological Association:*

GENTLEMEN.—Your Auditors beg to report that the books, accounts and vouchers of the Secretary and Treasurer, and Editor of THE AMERICAN JOURNAL OF INSANITY, have been examined and found to be correct.

J. M. BUCHANAN, Auditor.

On motion of Dr. Evans the report was accepted and placed on file.

THE PRESIDENT.—I now call for the reading of two reports by Doctor Brush.

The following reports were thereupon read by the Secretary.

*To the American Medico-Psychological Association:*

GENTLEMEN:—At the meeting of this Association in Richmond, in 1900, the undersigned was appointed a Committee to bring about the affiliation of our Association with the American Congress of Physicians and Surgeons. This Congress is, as you know, a triennial session, held thus far in Washington, of various special medical societies and associations. The Congress does not interfere in any way with the government or conduct of any of the societies of which it is constituted, except that it asks and expects that for a certain part of the three days session of the Congress the component societies forego holding individual sessions and unite as a congress in listening to papers and discussions upon topics connected with medicine and surgery by men selected from the members of the component societies or by invited guests of distinction. The government and direction of the Congress is in the hands of an Executive Committee, consisting of one member from each of the component societies and elected by those societies. This Committee has the control of all the business of the Congress and publication of its triennial volume and the application of any society or association for affiliation with the Congress must be to this Committee and the acceptance or rejection of the application rests with it.

As soon as I could learn that the Executive Committee was about to have a meeting, I made in writing on behalf of our Association, a formal application for membership in the Congress, forwarding a copy of the official organ of our Association—THE AMERICAN JOURNAL OF INSANITY—and through our Secretary, a copy of our last issued volume of transactions. In this application I referred to the fact that our Association was the oldest National, and considering its Canadian membership, International Medical Association. I stated that it was the only association of medical men in this country devoted to the study of insanity, and that in the years of its existence it had had an influence in shaping the public care of the insane, which could not be measured. I pointed out the value of its work—not only from a purely scientific and medical, but from a sociological standpoint and asked that in view of these facts its application be received with favor. I am happy to say that the Association's application was received with most flattering comments, and that the vote in its favor was unanimous. We are, therefore, now one of the component societies of a Congress composed—I think I may say without exaggeration—of the leaders of medical thought and study in this country. It has been, perhaps, the misfortune of psychiatry that its work has heretofore been considered as something apart from the interests and progress of general medicine. We have, therefore, been accused of lagging behind in the march of medicine. This affiliation with the progressive men of our sister societies, men who are every one of them special workers in some one or more department of scientific medicine, will bring us somewhat more fully into the view of our professional brethren, and our work—good bad or indifferent—will be judged by a body of educated and keen critics.

We will triennially be brought to what may be called a great clearing house of medical thought. Such contact and criticism, such exchange of views and comparison of methods as we shall here have opportunity for can but be to our advantage. At our next annual meeting it will be incumbent upon the Association to elect a delegate and an alternate to the Executive Committee, and a delegate to the Committee of Arrangements. The present Executive Committee of the Congress holds office for another year.

At the meeting of the Executive Committee on Monday evening, it was decided to recommend to the Congress that its next session be held in 1907, and triennially thereafter. This was done in order to have the American Congress held in a different year from the International Medical Congress.

I desire in closing this report, to urge upon all members of our Association to register and pay the dues of the Congress. This entitles those registering to the volume of transactions and is something which, in view of the courteous treatment which our application for admission to the Congress received, seems incumbent upon us all.

Respectfully submitted,

EDWARD N. BRUSH, Committee.

DR. BURR.—I move, Mr. President, that the report be accepted and that Doctor Brush be congratulated upon his efficient work in securing the affiliation of this Association with the Congress of American Physicians and Surgeons.

The motion unanimously prevailed.

#### REPORT OF DELEGATE TO FOREIGN ASSOCIATIONS.

*To the American Medico-Psychological Association:*

GENTLEMEN:—The undersigned was given by the Council of your Association credentials entitling him to represent the Association at the meeting of the Southwest German Alienists and Neurologists at Baden-Baden, in April last, and at the meeting of the British Medico-Psychological Association in July. He attended the meetings of both these Societies and conveyed to them the greetings of their American confreres. The meeting at Baden-Baden was presided over by Prof. Kraepelin and the papers and discussions were, as might be expected, of a high order. A striking feature of the meeting was the character of the discussions of the papers read and the freedom with which the various speakers dealt with the views of the essayist, a freedom which seemed to be taken as a matter of course and which, even when there was most emphatic dissent from the views put forth by the essayist, left no apparent ill feeling.

At the Liverpool meeting of the British Association Dr. Wigglesworth presided. Of the several papers read two—one by Mr. Damar Harrison on "The Results of Surgical Interference in Insanity with a Report of

Cases," and the introduction of a discussion by Dr. Clouston of Edinburgh, on "The Care of the Acute Insane in General Hospitals," were to me most interesting and suggestive. Your representative was very glad of the opportunity at these meetings to make new acquaintances and renew old ones, and for this and the honor of representing you, he thanks you.

Respectfully submitted,

EDWARD N. BRUSH.

On motion of Dr. Burr, the report was accepted and placed on file.

The names of the members recommended by the Council yesterday were then balloted for and all were elected.

The Secretary read a letter of regret from Doctor Edwards of Michigan who was quite ill and much disappointed that he could not attend this meeting of the Association.

THE PRESIDENT.—The next in order of business is the consideration of the amendment to the Constitution proposed by Dr. William Mabon.

THE SECRETARY.—I think all members have seen this amendment. The present article is as follows:

Every candidate for admission to the Association hereafter, in either of the three above-named classes of members; or as a Corresponding member, shall be proposed in writing to the Council, in an application addressed to the President, at least two months prior to the meeting of the Association, with a statement of the candidate's name and residence, professional qualifications, and any appointments then or formerly held, and certifying that he is a fit and proper person for membership. In the case of a candidate for Active or Associate membership, the application shall be signed by three Active members of the Association; and by six Active members for the proposal of an Honorary or Corresponding member. The names of all candidates approved by a majority vote of members of the Council present at its annual meeting, shall be presented on a written or printed ballot to the Association at its concurrent annual meeting, at least one session previous to that at which the election is made, which shall be by ballot at a regular session, and require a majority vote of the members present.

The amendment changes about the first half of this section and requires that applications shall be presented one year before the candidate is received into the Association. In this way the Council and the members can acquaint themselves fully with the candidates qualifications and eligibility.

The amendment as a whole reads as follows:

AMENDMENT PROPOSED BY DR. WM. MABON.

"Every candidate for admission to the Association hereafter as an Active member shall be proposed to the Council, in writing, in an application addressed to the President, at any annual meeting preceding the one at which the election is held. Honorary, Associate, or Corresponding members shall be proposed to the Council, in writing, in an application addressed to the President, at least two months prior to the meeting of the Association. Every application of whatever class must include a statement of the candidate's name and residence, professional qualifications, and any appointments then or formerly held, and certifying that he is a fit and proper person for membership." (Then follows rest of section.)

On motion of Dr. Hurd the amendment was adopted.

The following papers were read:

"The Paranoid Forms of Manic Depressive Insanity," Aug. Hoch, M. D., Waverley, Mass. Discussed by the President and Drs. Meyer Richardson and Paton.

"PARANOID DEMENTIA."—C. W. Page, M. D., Hathorne, Mass. Discussed by Dr. Henry M. Hurd and the President.

"Report of a Case—Was he a Paranoiac?" C. A. Drew, M. D., State Farm, Mass. Discussed by the President.

"Notes on Malignant Growths in the Insane." John Rudolph Knapp, M. D., New York.

"Blood Changes in Dementia Paralytica." A. R. Defendorf, M. D., Middletown Conn. Read by Dr. Keniston. Discussed by the President.

"Some Observations on the Insane, Blood Pressure." W. R. Dunton, Jr., M. D., Towson, Md. Discussed by Dr. Paton.

Adjourned.

SECOND SESSION.

The Association was called to order by the President at eight o'clock p. m.

Doctor L. Pierce Clark, of New York, read by invitation a paper entitled "Notes on the Newest Psychopathic Hospital at Kiel, with Photographs and Plans." Discussed by Dr. Cowles. On motion of Dr. Burr, a vote of thanks was extended Dr. Clark for his interesting paper.

"The Principles of Mental Pathology and the Nature of Men-

tal Symptoms." Edward Cowles, M. D., Waverley, Mass. Discussed by the President and by Drs. C. G. Hill and Michael Campbell.

"Pathology of Acute Delirium." H. A. Tomlinson, M. D., St. Peter, Minn.

"The Toxemic Basis of Certain Brain Diseases." W. E. Dold, M. D. Discussed by Dr. Pomeroy.

Adjourned.

THURSDAY, MAY 14, 1903.

FIRST SESSION.

The Association was called to order by the President at 10 a. m.

The Council reported favorably upon the application of Doctor Lemuel T. Hall, or Farmington, Mo., for active membership and recommended his election. A ballot bearing his name was submitted and referred to the Association for action at a subsequent session.

THE PRESIDENT.—I hope I shall not be accused of using language improperly, ladies and gentlemen, if I call upon the venerable Stephen Smith, of New York, for his paper which stands first on this morning's programme. The word "venerable" unfortunately in our language conveys the suggestion of age, but I use it in this case more in the ecclesiastic sense, for no man is old who still has soft arteries in his brain. Stephen Smith's arteries are all of that kind as you will discover ere he has finished this paper.

No one can read the title of the paper: "How Dr. Brigham met the Challenge to Diagnose Insanity at Sight," without being carried back at least sixty years or so which after all is not a short time. Doctor Brigham was the first superintendent of the Utica State Asylum which was opened in 1843. It may surprise you that Doctor Smith's memory goes back as far as that, but it may surprise you still more when I tell you that the last time I saw Doctor Smith his mother was still living and he was still receiving letters from her beginning "My Dear Boy." (Applause.) I think you will find he is still a boy if not one of the boys (Laughter and Applause).

DR. SMITH.—Perhaps I ought to apologize for introducing a

paper in the midst of your scientific discussions that is not of very scientific interest. But perhaps it may prove a diversion from the consideration of those subjects that are so difficult and require such a strenuous use of your mind. The paper I have here prepared describes a little incident in the history of Doctor Brigham that I believe has never been mentioned or, at least, has never been written about, to my knowledge. As I happened to be accidentally a witness of it I bring it forward now as a little historical event that may prove diverting even if it is not instructive.

The following papers were read:

"How Doctor Brigham met the Challenge to Diagnose Insanity at Sight." Stephen Smith, M. D., New York. Discussed by the President and Dr. Henry M. Hurd.

"Traumatic Insanity, Varieties and Pathology." Adolf Meyer, M. D., Ward's Island, New York.

"Traumatic Insanity, Symptomatology and Medical Treatment." A. B. Richardson, M. D., Washington, D. C. Dr. Richardson prefaced his paper by the following remarks:

Mr. President, ladies and gentlemen, I fear that after the two exceedingly interesting papers to which we have listened my feeble effort will be so out of proportion that I ought to make an apology for it. My description of this subject will be quite in contrast with that of Doctor Meyer. It is based simply on my work as a clinician and of course will lack the technical character that the paper of Doctor Meyer so fully brought out. I have felt my helplessness more in attempting to write on this subject—as requested by the Secretary of the Association—than I have for a good many years. And this because I have found it so difficult to get anything reliable or instructive or to arrive at any classification of the subject that I thought would be of value or be practicable.

At the conclusion of his paper Dr. Richardson said:

"As you will see I have limited myself in this paper almost entirely to the symptomatology. I do not understand that the medical treatment would differ in any respect from such treatment of insanity from other causes. It is only the question of operative interference which we are to discuss in the consideration of the peculiarities of treatment. I am not able to discuss intelligently

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when operative interference is justifiable. I should think, however, that as a general rule we should be rather cautious in advising operations in cases where we are not quite sure that the traumatism stands in a direct relation to the causation of the insanity. (Applause.)

"Surgical Experiences in Insanity of Traumatic Origin." Cases collected and tabulated by C. B. Burr, M. D., Flint, Mich.

"Results of Brain Surgery in Epilepsy and Congenital Mental Defect." W. P. Spratling, M. D., Sonyea, N. Y.

The Symposium on Insanity of Traumatic Origin was discussed by Drs. Hurd, Tomlinson, Dewey, Harrington, Evans, Keniston and the President.

"An Epidemic of Typhoid Fever Due to Impure Ice. R. H. Hutchings, M. D., Ogdensburg, N. Y. (Read by title.)

Papers were also read as follows:

"The Help Question in Asylums." Edward French, M. D., Harding, Mass.

"Psychology of Epilepsy." Everett Flood, M. D., Palmer, Mass.

Adjourned.

THURSDAY, MAY 14, 1903.

#### SECOND SESSION.

The Association was called to order at 3 p. m.

The following papers were read:

"The Treatment of Morphine Habit by Hyoscine. J. M. Buchanan, M. D., Meridian, Miss. Discussed by Drs. Burr, Jelly, Hill and Drew.

"The Report of A Case of Myoclonus Epilepsy." I. H. Neff, M. D., Pontiac, Mich. Discussed by Dr. Riggs.

The following papers were read by title:

"Physiological Demands in Hospital Food Supply." W. H. Kidder, M. D., Oswego, N. Y.

"Cases of Tumors of the Brain Causing Mental Symptoms." Henry C. Baldwin, M. D., Boston, Mass.

"An Important Medico-Legal Case." Henry R. Stedman, M. D., Brookline, Mass.

THE PRESIDENT.—Gentlemen, you will observe that the programme calls for a trilogy of papers on criminology, this after-

noon, so it seems to me appropriate that we should discuss them together. I shall not therefore call for discussion until Doctors Allison, Robertson and Lamb have had their say.

The following papers were read:

"Hospital Provision for the Insane Criminal." H. E. Allison, M. D., Fishkill Landing, N. Y.

"The Mind of the Criminal." R. B. Lamb, M. D., Dannemora, N. Y.

"Recognition of the Insane in Penal Institutions, A Factor in Diminishing Crime." Frank W. Robertson, M. D., Elmira, N. Y.

The above papers were discussed by Drs. Robertson, Pomeroy, Turner, Drew, Dewey and Richardson.

**DR. HENRY M. HURD.**—Mr. President, I wish to offer a resolution. We remember with great interest the resolutions offered in 1898, by Doctor Chapin, calling the attention of prison officials to the necessity for a better service in all institutions for the punishment of criminals and also urging the necessity of proper provision for the care of the criminal insane.

I wish to offer as a resolution that we re-affirm the resolutions adopted in 1898 and that our Secretary be instructed to present these once more to the National Prison Association and again request that action be taken upon them.

The resolution was unanimously adopted.

"Apparent Recovery in a Case of Paranoia." Richard Dewey, M. D., Wauwatosa, Wis. Discussed by Drs. Burr, Franklin, Gundry, Campbell and Drew.

**THE PRESIDENT.**—I should like to have some one make a motion to the effect that the Secretary be directed to cast a ballot for the election of Dr. L. T. Hall of Farmington, Missouri, whose election was recommended by the Council this morning.

**DR. A. B. RICHARDSON.**—I will make that motion, Mr. President.

The motion prevailed and Dr. Hall was declared elected.

Adjourned.

FRIDAY, MAY 15, 1903.

FIRST SESSION.

The Association was called to order at 10 a. m.

**THE SECRETARY.**—I have to present the report of the Council

on the time and place of the next meeting. The Council has fixed upon St. Louis, Missouri as the place for the next meeting of the Association, and recommends that it be held some time in the month of May or at the latest June, and leaves with the Committee of Arrangements the determining of the dates. It nominates the following as a Committee of Arrangements:

Doctors

Edward C. Runge,	Frank R. Fry,
C. R. Woodson,	George C. Crandall,
J. F. Robinson,	John Punton,
Charles H. Hughes,	John W. Smith.
Charles G. Chaddock,	

DR. WOODSON.—I would like to move, Mr. President, that Dr. J. F. Robinson be made Chairman of the Committee of Arrangements.

The motion prevailed.

DR. WOODSON.—I would also like to move that Doctor Hall of Farmington be added to the Committee.

The motion prevailed.

THE PRESIDENT.—The question now is: Shall this substitute report be accepted and adopted?

DR. WOODSON.—I move that the whole report be adopted as amended.

Which motion prevailed.

A paper by Dr. Robert H. Chase, of Philadelphia, Pa., entitled "Some Aspects of the Feelings in Mental Diseases" was read by title.

The following papers were read:

"A Case of Cerebro-Spinal Syphilis with Especial Reference to the Intra-Spinal Course of the Third Posterior Thoracic Root." Emma W. Mooers, M. D., Waverley, Mass. Discussed by Drs. Hoch, Meyer and the President.

"Psychotherapy." Ralph L. Parsons, M. D., Ossining, N. Y. Discussed by Drs. Dewey and Meyer.

"Suggestive Therapeutics in Psychiatry." James M. Keniston, M. D., Middletown, Conn.

A paper by Dr. E. P. Chagnon, of Montreal, Que., entitled "The Insane in Canada," was read by title.

A paper by Doctors Arthur B. Wright and C. Floyd Haviland entitled "Additional Notes upon Tent Treatment for the Insane at the Manhattan State Hospital East," was read by Dr. C. F. Haviland.

**THE PRESIDENT.**—While there is no time for the proper discussion of this paper by Doctors Wright and Haviland, I take upon myself to act as spokesman for the Association to thank these gentlemen for having conducted these most interesting experiments. For me at all events, and I have no doubt you must have had the same experience, the words "To your tents, O Israel," have acquired an entirely new signification.

I shall now call upon Doctor Macdonald for some account of his stewardship.

**DR. MACDONALD.**—Mr. President, ladies and gentlemen the time is so very short that I shall merely remark that I attended the International Congress at Madrid a fortnight since. I was most cordially received, whatever truth there may be in the complaints of the other American delegates and I can convey to you the assurance of the kindly feelings and esteem of those who met there. It might not be out of place for me to acknowledge my gratitude to you for the honor which was done me in my absence. (Applause).

Memorial notices were then read by title, as follows:

Eugene G. Carpenter, M. D. By H. C. Eyman, M. D.

P. O. Hooper, M. D.

F. C. Winslow, M. D. By Richard Dewey, M. D.

A. Vallée, M. D. By Geo. Villeneuve, M. D.

**DR. A. B. RICHARDSON.**—I would like to move that Dr. William M. Edwards be elected a delegate to the British Medico-Psychological Association for the coming year.

The motion prevailed.

Dr. Dewey I would offer a resolution which is as follows:

"It is a pleasure to record at this closing session of our meeting in Washington the warm appreciation with which we recognize the kindness and courtesy we have enjoyed at the hands of our hosts and hostesses.

"The untiring and efficient labors of Dr. A. B. Richardson in attending to arrangements for our comfort and convenience and also in entertaining the Association at the Government Hospital,

and thus affording an opportunity to inspect the admirable and complete construction work there going forward deserve a sincere word of thanks. Mrs. Richardson's courtesy in taking the ladies for a delightful drive about Washington is greatly appreciated by them and by us.

"We have found the Shoreham Hotel a pleasant and comfortable place for our meeting."

The resolution was unanimously adopted.

THE PRESIDENT.—I will now appoint Doctors Dewey and Woodson to escort the President-elect to the chair.

DR. A. B. RICHARDSON (in the chair).—Fellow-members, I can only say that I appreciate fully this expression of your confidence and hope that I shall be able to give my fullest efforts to satisfactorily execute your commands. I want to say in this connection with reference to our visit to the Hospital this afternoon that I hope that all who can possibly do so will come. We are anxious to have a full representation and as you know a good many of the members of the Association have left the city so that those who are still here will help us out in presenting a fair contingent of our Association at the Hospital as I have invited a number of medical men of the city to meet you there. We can leave promptly at 12.30 and can return at any time you desire although the special car will leave at four o'clock.

What is the pleasure of the Association?

DR. BURR.—I would like to move a vote of thanks to our retiring President for his very efficient and masterly conduct of the Association.

DR. HILL.—I take pleasure in seconding that motion and suggest that a rising vote be taken.

DR. A. B. RICHARDSON (in the chair).—It gives me great pleasure to put this motion to the Association to show our appreciation of the efficient and admirable manner in which our retiring President has discharged the duties of the position.

A rising vote was then taken and the motion declared unanimously carried.

DR. A. B. RICHARDSON (in the chair).—There being no further business before the Association, I declare it adjourned to meet at St. Louis next year.

ADJOURNED.

C. B. BURR, Secretary.

## Obituary

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DR EUGENE GROVE CARPENTER

By HENRY C. EYMAN.

"Death to a good man is but passing through a dark entry, out of one little dusky room of his father's house into another that is fair and large, lightsome and glorious."

Never was the uncertainty of life, and the awful sureness of death more forcibly brought to our minds, than in the sudden invasion of the home of our beloved co-worker. Dr. Carpenter was apparently in robust health, up to the very day of his apoplectic attack. He was stricken Thursday evening, October 16, 1902, and never wholly regained consciousness, passing away peacefully and without a struggle on the evening of the following Sunday. He was in the midst of his labors, and in the very zenith of his manhood. His record as an alienist, his personal worth, and the integrity of his life will be held in sacred memory by his hosts of friends and fellow-laborers in the great field of practical psychiatry.

Dr. Eugene Grove Carpenter was born in the village of Newville, Richland County, Ohio, January 14, 1857. He assisted his father in the manufacture of leather in his early life, and by this association planted the seed of good business principles, which were so marked in his later career. He obtained his education in the public schools of Mansfield, and the Ohio Wesleyan University at Delaware, graduating from the latter institution in 1882. In 1884 he graduated from the College of Physicians and Surgeons, Baltimore, Md. In 1885 he was appointed assistant physician of the Cleveland State Hospital, then under the able management of Dr. Jamin Strong. Here he received his first inspiration to pursue the study of psychiatry. Sitting at the feet of this eminent Gamaliel he became thirsty for a more extended knowledge of this absorbing field of medicine. His ambition to become

a great neurologist and alienist was rapidly being gratified when death touched his elbow and beckoned him to follow. After leaving the Cleveland State Hospital he practised for a time in Cleveland, and in 1894 he went to New York for a Post Graduate course, and thence to Vienna, where he took a prolonged course of instruction. He also took a special course under Prof. Gad at Berlin. In 1896, he went to Heidelberg, and took special courses under Professors Erb and Kraepelin, then returned to Vienna, and later went to Paris and London. After his return to the United States he was made a member of the staff of the Cleveland City Hospital, and shortly thereafter was appointed on the Board of Trustees of the Massillon State Hospital. In 1898, he was appointed Superintendent of the Columbus State Hospital to succeed the eminent Dr. Richardson, now Superintendent of the Government Hospital at Washington, D. C. He held this position until his death.

From boyhood he was of a happy, cheerful disposition, and was particularly beloved for his integrity. He had an observing mind, and a wonderful memory for details. He was inclined to research, and was never satisfied with a statement until he knew the reason why. His disposition was fraternal, and he was, therefore, at peace with his brethren. He was kind, yet withal a strict disciplinarian, and was particularly intolerant of any severity toward the unfortunates under his charge. His knowledge of the elementary principles of medicine and physiology enabled him to form a sound judgment. He was not considered a brilliant man of the meteoric variety by his comrades, but his deliberate, careful, conscientious and exhaustive examination of patients, placed him in the front rank as an insanity expert, and his testimony had great weight with juries. Even in his college days he was not a book-worm, but the grasp of his mind was such that he could secure the essentials from his books without mastering the details. His excellent memory gave him great advantages, and his ability to call up principles and facts which he had learned in youth was remarkable.

Few men enjoyed life better than Dr. Carpenter. He fully met the standard set by Epicurus. "It is impossible to live pleasantly without living prudently and honorably, and justly; or to live prudently and honorably and justly without living pleasantly."

His domestic life was pure, sweet and admirable. He was twice married. In 1893, he wedded Miss Helen Wells, of Utica, N. Y., whose death occurred five months after. In 1896, he married Miss Lou McCormick, of Mt. Vernon, Ohio. Their wedded life was unusually serene and joyous. His bereaved and heart-broken widow writes me that a few days before he was stricken he said to her, "I am afraid we are almost too happy." His five-year-old son was the pride of his heart, and no matter what the inducement for entertainment or pleasure nothing superseded his love for home and family. He was true and kind and forceful, combining the gentleness of a woman with the firmness of a strong man. He was eminently practical in all the affairs of the vast work committed to his care. His spirit was altruistic, and his great mind and strong body were used wholly for the betterment of his charges.

Life is a crucible; we are thrown into it and tried, the actual weight and value of a man are determined by the good he has accomplished and the place he holds in the hearts of his fellow mortals. Measured and weighed by these standards, Dr. Carpenter, was a full-grown man. We cannot believe he is dead. We are prone to believe that "living is death; dying is life; we are not what we appear to be. On this side of the grave we are exiles, on that citizens; on this side orphans, on that children; on this side captives, on that freemen; on this side disguised, on that disclosed and proclaimed the sons of God."

#### JANNAT ERNESTINE HILLS, M. D.

Jannat Ernestine Hills, M. D., died at the Willard State Hospital, Willard, New York, on July 11, 1903. She had been a member of the medical staff of the hospital since November, 1895. She was born in Auburn, N. Y., in 1861, and was a graduate of the Woman's Medical College of Pennsylvania, in 1893. After graduating she was for fourteen months an interne at the Sheltering Arms Hospital in Philadelphia, and was afterwards on the staff of the New York City Asylum for the Insane at Hart's Island.

Dr. Hills was a member of the Seneca County Medical Association and of the New York State Medical Association.

## Notes and Comment

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SANITARIUM OR SANATORIUM? BOTH.—Dr. J. H. Mason Knox, Jr., Superintendent of the Thomas Wilson Sanitarium for Sick Children, not long since received a protest from a correspondent against the use of the word Sanitarium in the title of the institution, who said among other things: "If you will read your Century Dictionary you will find that it says 'Sanatorium, a place to which people go for the sake of their health,' so you speak of sanatory medicine. Sanitary, on the other hand, 'pertaining to health, hygienic,' so you speak of sanitary science. You speak of the condition of a house being 'sanitary' and it is utterly impossible to make sanitarium out of any such condition of affairs. The Century also says that 'sanitarium' is an improper form for 'sanatorium.' In other words, according to the best English scholars there is no such word as sanitarium."

To this Prof. Francis A. March, of Lafayette College, Easton, Pa., replies as follows:

"*Sanitarium* and *Sanatorium* are synonyms, and either of them may be applied to the Thomas Wilson institution. They are neuter forms of the adjectives *sanitary* and *sanatory*, i. e., (in modern Latin), *sanitarius* and *sanatorius*; *sanitarius*, healthful, is from L. *sanitas* from L. *sanus*, sane, sound; *sanatorius*, is from L. *sanatus*, pp. of *sanare*, to make sound, to keep sound. The words derived from *sanitas* are more familiar in English and French than those from *sanare*, and are hence applied with more freedom to any place of resort for health, whether preservative or curative.

"Your circular dwells much on cure, but I think the use of *Sanitarium* by your founders shows their interest in the sanitation of the place, rather than their ignorance of synonyms. For dictionary authority, see the Standard or Webster's International."

## Book Reviews

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*Bulletin of Iowa Institutions (under the Board of Control).* Published quarterly. Vol. IV. (1902. Herald Printing Co., Dubuque, Iowa.)

The Bulletin of which the one before us is the annual volume is the practical outcome of the meetings of the officers of all the Iowa institutions which are under the so-called Board of Control. As the institutions are not identical in scope or purpose, the papers which are presented at the public meetings and the consequent discussions are often of little service to those who are charged with the administration of institutions for the insane. It is noticeable, however, that the conduct of such institutions and the problems involved in provision for the insane are prominent topics at each meeting and that all institutions profit by the presence of experienced alienists and hospital administrators. In examining the papers published, one indeed is struck with the fact that institutions for the insane seem to have established a standard of care for the defective classes in all the institutions of Iowa. When the Board of Control was first suggested a fear was expressed on the part of those who were especially interested in the care of the insane that hospitals for the insane might be placed upon substantially the same footing as correctional or reformatory institutions, as they were equally under this board. It is gratifying to observe that the Board of Control has exercised a wise discretion in this matter and that the statistics of institutions of a simpler grade, with less complexity of organization, have not been used to revise those of hospitals for the insane. This is as it should be. The expenses of the maintenance, medical care and treatment of an institution for insane persons in an acute stage of their disease cannot be brought into equitable comparison with those of a house of correction or penitentiary where the inmates are able-bodied adults capable of regular labor.

In the present volume many of the papers are interesting and valuable to all institution workers and the discussions are often forceful and instructive. The Bulletin is creditable to the State and to the officers of her public institutions alike.

*Organic Diseases of the Nervous System.* By M. Allen Starr, M. D., Ph. D., L.L. D. Illustrated with 275 engravings in the text and 26 plates in colors and monochrome. (Lea Brothers and Company, New York and Philadelphia, 1903).

The extensive clinical experience of the author of this book entitles him to speak with certainty on the many doubtful questions engaging

the attention of neurologists. The book is not only marked by the many personal observations of the writer but by admirably conservative recommendations in regard to prognosis and treatment.

In the introductory chapter the neurone theory is well discussed in its various relations and the objections to its acceptance are stated. This is followed by an extensive discussion of the injuries of nerves and the various forms of neuritis. This chapter is full and deserves special commendation. The chapter on the regional diagnosis of the diseases of the spinal cord is full and is illustrated by many original diagrams of the various tracts which are worthy of careful study. Progressive muscular atrophy and amyotrophic lateral sclerosis are treated as separate diseases. A separate chapter is devoted to primary lateral sclerosis, though the author recognizes the rarity of this affection as a primary disease.

In the chapter on the diagnosis and localization of cerebral diseases no mention is made of the work of Farrar and others on the histology of the motor cortex nor the recent work of Sherrington and Grünbaum on the motor cortex in the higher apes. In dealing with the question of the localization of the sensory cortical centers while coming to no definite conclusions the author seems to incline to the view of a separate sensory cortex, citing cases which seem to support this theory.

The illustrations are excellent and from the fact that many of them represent actual cases deserve more than passing notice. Many are original and these, especially, show careful selection in the subjects portrayed. Much more might be said would space permit.

The chapter on brain tumors with the exception of a few very minor details (such as the use of the term gliosarcoma) is admirable. Knowing Dr. Starr's extensive study of brain tumors one is disappointed in the fact that he cannot give a more hopeful prognosis.

Syphilis is dealt with in a short chapter in which attention is called to the fact that the symptoms are the same as those resulting from other causes producing the same lesions.

The book is in every way an excellent one and can be recommended to all who desire a knowledge of the present status of the organic diseases of the nervous system.

R. M. V.

*Why the Mind has a Body.* By C. A. STRONG, Professor of Psychology in Columbia University. (New York: The Macmillan Co.; London: Macmillan & Co., Ltd., 1903.)

This interesting title suggests a metaphysical problem of the first importance—that of the general nature of objectivity—but this problem itself is really not touched upon at all in the body of the work. The problem is rather that of the relation between mind and body—how it is possible that there should be any even apparent connection between them at all, and the nature of this connection. The discussion covers the ground of the late Professor Clifford's essays on "Body and Mind," and "On the

Nature of Things-in-Themselves," and the whole book, indeed, may be characterized as an elucidation and amplification of Clifford's theories.

The author carefully insists on that important distinction between philosophical and scientific method which is so often neglected by thinkers of the pluralistic school of idealism, as well as by those of the realistic type. The empirical part is devoted to a discussion of the observed facts of sensation and volition, and of the theories of automatism, parallelism, and interactionism as to the possibility of a causal relation between mind and body, and the nature of the relation in general. The author shows conclusively that the empirical method cannot give sufficient grounds for a settlement of the question, and then proceeds in the metaphysical part to discuss the ultimate nature of mind and matter, and by that route to explain their connection.

The most important pages are those which treat of consciousness, the nature of things-in-themselves, and the theory of "psychophysical idealism." in which the author sets forth his positive views. Professor Strong's thing-in-itself is not the unknowable of Kant and Spencer, but rather the "Mind-Stuff" of Clifford (though this term is not used by the author). His general theory, in fact, cannot better be expressed than in Cliffs own words, "The universe consists entirely of mind-stuff. The 'material universe' is an imperfect representation in the mind of the real universe of mind-stuff." The relation between consciousness and the "extra-mental" world of things-in-themselves is symbolized by the relation between the "brain-event" which must accompany the state of consciousness and the material phenomenon which, in popular parlance, "causes" the perception. The causal connection between the brain and the outer world is phenomenal, and symbolizes the *real* causal connection among things-in-themselves. It follows that consciousness, instead of being an entity apart and of a different nature from matter, is a thing-in-itself which, on the phenomenal side, is seen as the brain that "has" the consciousness. The body, and the whole phenomenal world, in like manner, symbolize a real world of mind-stuff. Consciousness is thus developed from more elementary forms of phenomenal matter.

Professor Strong acknowledges that his task is far from completed, and reserves for a later book a detailed investigation of the inner workings of consciousness. A serious defect in the present work is its failure to account for the continuity of the individual consciousness. The author rejects the idea of the entity of the soul, but he has an Ego, even though this Ego be but a momentary lightning-flash of consciousness which disappears the minute we begin to think about it. It may be doubted whether this Ego be any more satisfactory than that which he rejects. The great merit of the book is its reduction of both mind and matter to a level of one nature, and that an ideal one—therein consisting the justification for the title. This theory is substituted alike for that strongly persistent dualism which sets two coequal entities in eternal antagonism, and then wonders why the connection seems inexplicable, and for that monism which regards them both as phases of a third substance, thus multiplying entities instead of reducing them. For this, at the expense of an ultimate pluralism which

(as all pluralism as such must do) leaves the still open question as to how relation and oneness are possible at all, we are offered a theory which asserts a difference in level of reality between mind and the matter we ordinarily oppose to mind—the former being ultimately real, and the latter phenomenally symbolical of it. For a clearing up of the other questions which arise in view of Professor Strong's theory, we look to the later book which he has promised us.

JARED S. MOORE.

## Half-Yearly Summary

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**CONNECTICUT.**—*Retreat for the Insane, Hartford.*—It is now about six years since the law relating to the commitment of patients to hospitals for the insane was so far modified by the legislature as to make it possible for patients to be received and treated who voluntarily make a request to this effect. The number making such request to the Retreat has increased from year to year, and of the one hundred and twenty-three admissions, ninety-five have been voluntary.

Maplewood Cottage, on Cedar Mountain, was occupied to its full capacity during all the summer and a part of the autumn months, very greatly to the satisfaction of those who could be accommodated there. The movements of patients while there are less restricted than when in the city, and the atmosphere of the higher altitude seems to act in some cases as a pleasant stimulant, so that patients pass the larger portion of time, when favorable weather conditions exist, in the open air. It is, however, proper to add that the expense incident to the necessary care of this part of the institution, requiring as it does a resident there during both summer and winter, adds very considerably to the average weekly cost of patients.

The cottages on the lawn continue to be used to their full capacity by patients who are affected with the milder forms of mental disorder, and are highly appreciated by both patients and their friends. They have less restrictions for those occupying them than exist in the central building, and are easily accessible to friends who desire to make more or less prolonged visits.

**DISTRICT OF COLUMBIA.**—*Government Hospital for the Insane.*—The Washington *Evening Star* publishes the following description of new buildings at St. Elizabeth's:

Fourteen handsome new buildings, roofing in altogether an area of six or seven acres and costing the government a million and a half of dollars, are nearing completion at the Government Hospital for the Insane. Thirteen of them are expected to be finished by the first of December, and the last, the largest and most elaborate—the administration building—about the middle of January. The contractors have been at work for the past twenty months. They had plans when they entered upon the work for five additional structures, which have since been abandoned on account of a lack of funds. Another appropriation by Congress may secure their completion within a few years.

Thirteen of the buildings are under roof now; one has its roof nearly completed; eight have all their interiors except the plastering completed, and ten are plastered. They are model and modern buildings in every respect, and when they are ready to be occupied by the inmates and officials of St. Elizabeth's, they will be supplied with every convenience.

The structures are built of red brick with Indiana limestone trimmings. They have tiled roofs, and completed will have tiled floors in all bath rooms and dining rooms, granolithic floors in all basements and service rooms, and North Carolina pine floors in all other rooms. There will be slate partitions in all lavatories, and stairways will be of iron. Every building is two stories high, except the administration building, which has four stories.

It is designed that they shall meet every need of the institution, and to this end separate quarters have been provided for each class of patients. In addition to the administration and culinary buildings and a new home for women nurses and employees, there are two hospitals, one for male and one for female patients; four cottages for quiet patients; a cottage for male epileptics and one for females; two buildings for "disturbed" cases, and a building to be devoted to untidy and destructive men. Rooms of some of the buildings are provided with windows having shutters of armor plate one-fourth of an inch thick, through which there is a three-eighths of an inch hole for the admission of light. Rooms thus fitted are to be occupied by violent patients.

The two hospitals mentioned are on either side of the administration or office building, which is to be the home of the Superintendent, and are connected with it by two colonnades of white, unornamented columns, upholding a peaked roof, and also by two tunnels, eight feet wide by eight feet high. Each of these hospitals is elaborately equipped, the operating rooms being lined with white Italian marble.

The home of the Superintendent is by far the most striking structure in the whole group. It is much larger than the others, has a front portico with large white stone pillars, and will have more stone on the exterior and marble in the interior, and will have beautiful mosaic floors in all of its principal corridors and rooms. The appearance of this building is greatly enhanced by the colonnades, which extend out on either side to the adjoining hospitals, which are thus made to appear as large wings to the center structure.

The other buildings are of nearly one size, ranging from about 130 to 180 feet wide by about 260 to 300 feet long. Every building is fireproof. The grading of the surrounding grounds, the laying out of parks, paths and driveways, and the furnishing of the buildings will be commenced immediately.

The fourteen buildings are in three groups, the first situated to the south of the old buildings, which stand on the western portion of the grounds, the second on the eastern portion on the south side of Nichols avenue, along which runs the Congress Heights trolley line, and the

third across the avenue outside of the wall which incloses the grounds proper.

If the present plans are carried out, a subway will connect the second and third groups. It will extend under the road, and enable persons to pass to and fro without being hampered by the traffic on the highway. The principal buildings, including the administration building, belong to the second group.

**GEORGIA.**—*Georgia State Sanitarium, Milledgeville.*—In their last report the Trustees urge the provision for isolation of cases of tuberculosis. This is particularly necessary to relieve the distressing condition of the negroes, who are particularly susceptible to the disease. Over thirty per cent of the deaths are due to tuberculosis. One case of smallpox has been received, but the prompt action of the Superintendent prevented the spread of this disease. Measures for removal of the convict class are also desired.

The sum of \$150,000 was appropriated by the legislature in 1900 for the erection of a suitable building or buildings to relieve the overcrowded condition of the other buildings and to provide additional accommodations for the constantly increasing number of insane. A twin building was determined upon, each structure consisting of a central octagon four stories with four wings three stories high radiating therefrom. There is placed between the two buildings a kitchen with boiler room attached, and two congregate dining halls. These buildings have been accepted from the contractors, and as soon as provision is made for lighting and furnishing them they will be ready for occupancy. Five of the eight wings are completed entirely and partially furnished, while three are finished exteriorly only.

A study of the cases which have come to autopsy shows that chronic disease of the arteries ranks first as regards frequency of the general diseases. The arteries were found to be diseased in 92.3 per cent of cases. Chronic nephritis could be demonstrated by the gross appearance in 76.9 per cent, and a microscopical examination shows this disease to be present in 84.6 per cent. Valvular disease of the heart comes third in point of frequency, being present in 69.2 per cent. Tuberculosis was found in 30.7 per cent of all cases.

**MICHIGAN.**—*Michigan Asylum for the Insane, Kalamazoo.*—The Superintendent, Dr. William M. Edwards, who has been seriously ill, was on July 1 granted a six months' leave of absence. At present he is in Europe in greatly improved health, and is devoting much of his time to investigating methods of foreign countries in caring for the insane. He will probably return to the United States in October and will spend some months in New York and other eastern cities and resume his duties on January 1, 1904. The Assistant Medical Superintendent, William A. Stone, has been appointed Acting Medical Superintendent during Dr. Edwards' absence.

The construction of a new water tower for the Colony, a new cold storage system and a building for the enlargement of the central heating plant is in active progress.

Nothing new or novel in the treatment of the insane has been developed in the past six months. Hydrotherapy is being more extensively employed than formerly and the fall classes for instruction in this and the art of massage have been organized. The training school for 1903-1904 will be formally opened about the 1st of October. The curriculum will embrace more practical demonstrations and more actual work on the part of the nurses and fewer lectures than have heretofore been the custom.

**MISSISSIPPI.**—*East Mississippi Insane Hospital, Meridian.*—There are now under construction two new buildings for the accommodation of 125 patients. One building is an infirmary for women, the other is for men of a mild type of insanity.

**NEW JERSEY.**—*New Jersey State Hospital at Trenton.*—The last annual report of the Board of Managers animadverts upon the conditions in the county almshouses, where detention of the insane is recognized by statutory enactments.

"The county institutions for the care of the insane, located in this hospital district, have been visited by members of the Board of Managers, in compliance with the act approved May 17, 1894, and submit the following report of the condition and management:

"Asylums, supported in part by the State, have been established in the counties of Atlantic, Burlington, Camden, Cumberland, Gloucester and Salem. In each of these counties, except in Gloucester and Salem, separate buildings have been erected, furnished with the usual accessories for the care and comfort of the insane, and provided at a considerable cost to the several counties. We much regret that we have again to report that in the counties of Salem and Gloucester no separate buildings that can in any way be regarded as suitable for the care and treatment of the insane have been provided. These counties are receiving the same amount—\$2 per week per capita—from the State that is given to those counties that have made liberal and separate provision for the care of their insane.

"In Gloucester the insane are quartered in the almshouse, and in Salem in a separate building immediately adjoining and forming practically a part of the almshouse, but in which nothing is furnished to meet even the ordinary requirements for the care and treatment of the insane. These places are designated as 'asylums,' and notwithstanding the fact that they are the recipients of State aid, yet are without any organization whatever; without adequate medical supervision and without attendants or nurses in any way qualified to care for the unfortunates committed to their care. In fact, the only nurses furnished are the resident inmates of the almshouse.

"In Salem county there is only one bath room in the building, used by both sexes, and no hot water is furnished for bathing purposes except it is carried in buckets from the main building.

"Most of the floors in the building are covered with sheet zinc, making it cold, cheerless and uncomfortable for the inmates. There is also no separation of the sexes except that furnished by an almost constant seclusion of the patients in their rooms.

"Attention has been directed to this neglect, to make proper provision for the insane for whom State aid is received, in our former annual reports. We are still of the opinion, heretofore expressed, that an almshouse in which the insane and paupers commingle in common, and without any organization or any provision made for their especial care, does not in any manner fulfill the idea intended by the State in authorizing the establishment of county asylums.

"In the counties of Atlantic, Burlington, Camden and Cumberland, separate and commodious buildings have been provided. These buildings are well constructed and well furnished and have many of the modern appointments considered necessary in such hospitals, have a regular corps of attendants, and are visited in each case daily by a physician, who, in addition to his formal daily visitations, is subject to call at any time that his services in the hospital may be needed. In each one of these institutions we found the patients, at the time of our visits, apparently well cared for, furnished with clean, comfortable, well-ventilated quarters, and provided with suitable food and clothing."

NEW YORK.—*Buffalo State Hospital, Buffalo.*—Dr. Adolf Meyer, Director of the Pathological Institute of the New York State Hospitals, recently spent one week at the Buffalo State Hospital engaged in the study of cases, giving lectures and holding conferences with the members of the staff. This week of study, which was similar to a week given to each of the other State hospitals, was along lines similar to the work pursued so profitably during the past winter by different members of the several staffs at the Pathological Institute on Ward's Island.

The Training School for Nurses graduated last June eleven women and two men who had completed the two-year course of lectures and training.

An addition to the Home for Women Nurses, to accommodate thirty-six, has been erected in connection with the original Nurses' Home during the past summer at a cost of about \$11,000. It is expected that this building will be ready by October 1.

The Commission in Lunacy has had plans drawn and specifications are being made for a Superintendent's residence and a residence for the medical staff, a home for men nurses, and a new chapel, on the grounds of the hospital, the space, which has been heretofore used for the different people or purposes mentioned, to be used for the care of an additional number of patients. Although these changes have been

contemplated for several years, the work has never been begun, and it is hoped that this year will see, at least, the beginning of these very much needed changes.

Within the past few months the crowded condition of this hospital has been very much relieved, and the accommodations rendered very much more satisfactory and conducive to comfort and recovery, by the transfer to the Gowanda State Hospital of two hundred patients, one hundred men and one hundred women.

—*Hudson River State Hospital, Poughkeepsie.*—*Sun Rooms.*—Two large sun rooms, 24 x 48 feet, have just been completed in connection with wards 4 and 8 of the south wing. One of these wards is used by the acute, and the other by disturbed and violent cases, and the sun rooms are expected to add greatly to their comfort. As the rooms face east and south, and are protected from the north and west winds, they can be used at all seasons of the year.

*Hydrotherapeutic Rooms.*—The hydrotherapeutic rooms have been in operation for several months past, and the results obtained have been very satisfactory.

*Superintendent's and Staff Residences.*—Ground has been broken for the Superintendent's and staff residences, and it is hoped to get the work well under way before cold weather.

*Surgical and Clinical Pavilion.*—Plans have been approved for a surgical pavilion which will be placed midway between the two wings of the main building. The basement will contain a lecture room for the training school and a library and reading room for patients. The main floor will have etherizing, sterilizing and operating rooms. There will also be rooms for electrical, ophthalmological and gynecological examinations. On the third floor there will be a well-equipped photograph gallery.

*Bakery and Employees Building.*—Plans are being perfected for a new bakery, the front part of which will be provided with rooms sufficient in number to provide for all kitchen and bakery employees. The building will be located close to the railroad track, which will facilitate the handling of flour in carload lots. The rooms for employees will enable us to provide good accommodations for a number of employees who are now but poorly cared for in basement rooms.

*Bowling Alley.*—A very complete bowling alley is being fitted up in the old basement rooms in what is known as the "laundry corridor," and it is expected that it will provide amusement and exercise for both sexes.

*New Lavatory for Patients.*—A new lavatory has been fitted up in the basement for the use of working patients. It is thoroughly sanitary and easy of access, and a great improvement upon the old one.

—*Craig Colony for Epileptics, Sonyea.*—The following is a summary of the more important work done at the Colony during the past half year:

The infirmary additions begun in April have progressed rapidly and will probably be ready for occupancy during the summer of 1904. Four additional cottages for employees have been erected during the past spring and summer and are now ready for use. In the past the Colony has had no accommodations for transient visitors to patients, and to meet this demand a small hotel is now in course of erection. The new bridge across the Kishqua creek has been completed and work is now progressing on the approaches. A new root cellar has been built in the garden.

Considerable work in the line of equipment has been done in the laboratory building since its opening, June 1. The increase in medical equipment since the opening of the laboratory has been mainly in the direction of laboratory supplies, yet a number of new volumes have been added to the medical library, and some new instruments and furnishings supplied in the hospital.

With the exception of the addition of a pathologist to the Colony staff, there has been no change in the organization of the medical work.

It is hoped before long to start the medical work on a somewhat different basis, the idea being to add a wing to the Peterson Hospital in which there will be greater facilities for examining patients and doing the necessary clinical work. It is intended that the patients shall come to this building regularly for observation and treatment, somewhat as to the out-patient department of a general hospital. On account of the rapid growth of the Colony and the scattering of small buildings, as well as the great measure of liberty granted patients in an institution such as this, it is extremely difficult for the medical officers to see and examine patients sufficiently often unless some such plan for bringing the patients regularly together is carried out. In this way it is hoped to decrease the amount of routine work now necessary on the part of the medical staff and to give the physicians more time for purely medical work.

Work on a small building for the isolation of patients suffering from contagious diseases will soon be started. This will be a substantial frame structure of moderate cost, capable of accommodating nine or ten patients of each sex, together with the necessary nurses.

An addition to the laundry building will also be erected. This is greatly needed, as the present laundry facilities are not adequate to the needs of the present population. This increase in equipment will be mostly for the purpose of washing the clothing coming from the infirmary patients and others who are frequently soiled and for whom a large amount of laundry work is necessary.

The sewage filtration beds, two in number, which have worked admirably thus far, will soon be inadequate to care for the increase in sewage as the Colony grows, and to meet this need an additional bed, one acre in extent, will be constructed beside the two now in use. With three beds in operation, the sewage from at least 1500 persons can be safely cared for.

In addition to the foregoing, considerable work has been done in the line of grading, making lawns, tree planting, and improving the grounds about the new buildings. The exteriors of many of the buildings have been painted. A number of pictures and tapestries have been added to the furnishings of the hospital building, which have done much to render it more comfortable and homelike.

The last legislature granted an appropriation of \$500 to be used in making a model of the Colony for the St. Louis Exposition. It is intended that this shall correctly represent the Colony topography and show the style and location of all buildings now standing or in contemplation.

Among the pressing needs of the Colony there is nothing more important than the development of the industries. Those already established prove that properly selected epileptics under competent supervision are able to accomplish much of benefit to the Colony as well as themselves. Broom making has been added to the other industries during the past few months, and it is hoped to further increase such facilities for useful employment. The manufacture of brick, for which the Colony offers exceptionally good opportunities, continues to be one of the most remunerative and beneficial industries for men patients. The equipment in the brick yard has been improved. Twenty-five patients and two employees have been engaged in this industry during the summer and 350,000 bricks have been manufactured and used in the construction of the new buildings.

The present population is 830, which will be increased by 200 when the buildings now in course of construction are ready for use. There is no diminution in the number of cases awaiting admission.

—*Manhattan State Hospital, West, Ward's Island, New York City.*—  
*Clinical Work.*—Since the issue of the April summary for the JOURNAL OF INSANITY, there has been considerable advancement in the clinical work of this hospital.

A large number of gynecological operations have been performed by Dr. LeRoy Broun, Consulting Gynecologist, his assistant, Dr. Rawls, and the physicians in charge of the hospital wards. The usual gratifying results were obtained and need no comment. Prof. Wm. H. Thomson, M. D., assisted by Dr. Ferd. C. Valentine, Consultant in Genito-urinary Diseases, and Dr. Robert C. Kemp, are making a series of investigations of gastro-intestinal disorders and their relation to nervous diseases.

Dr. Valentine is now investigating the subject of enuresis, and treating a number of cases by the epidural method. These patients have shown a marked improvement.

Dr. Kemp is paying considerable attention to gastroparesis in epileptics.

Dr. William C. Lusk, Consultant in General Surgery and Diseases of the Rectum, makes frequent visits.

Dr. Ward A. Holden, Consulting Ophthalmologist, in addition to the large amount of eye work, is making careful and systematic observations of the eyes of the acute insane where hallucinations are prominent.

Dr. Henry H. Whitehouse, Consultant in Diseases of the Skin, makes regular visits.

Dr. Achilles Rose is now conducting a series of investigations on the effect of carbon-dioxide gas baths on the circulation with special reference to blood pressure.

The work of Dr. John F. Russell, who at the time of the last summary was directing the treatment in a number of cases of pulmonary phthisis, is now being carried on by the members of the medical staff with gratifying results.

The hearty co-operation of the gentlemen of the consulting staff has been a most healthy stimulus to the medical work of the hospital, and keeps renewed the enthusiasm of the resident medical staff.

Recent additions to the medical staff now permit more attention to the clinical work of the hospital, and to individualize treatment to a greater extent. In each new admission, a complete and exhaustive mental and physical study is made, and most careful attention is being given to the etiology. The appointment of a medical stenographer now provides for records of these facts in a most systematic manner. As soon as the history in each case is completed, the history and the patient are presented at the bi-weekly staff meeting for discussion. These discussions are along the lines laid down by Kraepelin, and his classification is closely followed, although for statistical purposes the old system of classification is used.

This summer tent life for the acute depressed and disturbed patients was inaugurated at this hospital. Two large tents with a capacity of 25 patients each, fitted with toilet, bathing facilities and sewerage connections, were provided. Also two other tents, one of which serves as a dining room and the other as a sitting room. All of these are lighted by electricity and suitably furnished, making them very comfortable and homelike. This camp has been used as an adjunct to the reception service. The observations made during the time the patients have resided in the tents show very gratifying results. It is noted that the disturbed cases become quieter more quickly than similar cases cared for in the ward, and this is even more marked in the agitated and depressed class.

A marked and rapid improvement has been noted in sleep, appetite and weight. Examination of the blood made in a number of anaemic and debilitated cases showed a rapid increase of the red corpuscles, with corresponding improvement in the haemoglobin, although there was no medication. The patients in the camp, as a rule, are delighted with their environments, and although the cases treated there are of the most active type, there has been no trouble whatever, and the results obtained justify the continuing of the use of the camp during the summer and autumn months.

*Improvements and Changes.*—The new building, which has now been occupied about three years, has been painted inside, and is now in a most presentable condition. A new coal trestle is being constructed, which will greatly facilitate the unloading of coal from boats.

A complete telephone system has been introduced and the wards and industrial buildings are now in direct communication with the administration office.

The amusements of the hospital continue to be a special feature, and outdoor games and gymnastics continue to be a source of pleasure to the more active patients. Appropriate exercises were held on May 1, and field day sports on Decoration Day, Independence Day and Labor Day.

The usual summer excursions on the hospital steamer "Wanderer" have been held, and are enjoyed by both men and women patients. Through the courtesy of the East Hospital, salt water bathing in the large pond at that hospital has been continued three times a week. Preparations are now being made to construct a one-story solarium at the east end of and adjacent to ward 21 for feeble and untidy patients.

**NORTH DAKOTA.—*State Hospital for the Insane, Jamestown.***—The last legislature of the State of North Dakota passed a law authorizing the Governor to issue \$70,000 worth of bonds to provide for the erection of a small hospital building, a cold storage building, additions to the assembly hall and congregate dining rooms. Work was commenced by the Board of Trustees in accordance with what they supposed their authority and the foundation of the hospital building was completed. Before work could be carried on any longer, however, a decision of the Supreme Court, brought up by other matters in a case referring to another institution, brought before it (the court) on appeal, to the effect that this issue of bonds was invalid, for the reason that the State debt limit, constitutionally provided for, had been reached and exceeded already. The bonds will not be issued; accordingly, no relief for the deplorably crowded condition of the hospital can be looked forward to this year. There is some talk of a special session of the legislature, which may provide for an appropriation from an unappropriated surplus now in the treasury for the possible application to the further extension of the hospital building left unfinished, and which is greatly needed. The State debt limit is absurdly small. The population of the State has increased greatly in the last four years without any corresponding increase in the facilities for the care of the helpless and defective class which such immigration carries with it. It is not yet known definitely whether this method of relief can be looked forward to with any degree of hope. Till some building extension is provided for the hospital, the crowded condition of the wards among the women of the congregate dining room, which scarcely affords a seat to those patients who might possibly share in its privileges, the small

amusement hall with its inadequate facilities for the amusement, entertainment or instruction of patients, all tend much to cripple the work of the institution, retard cures, and in the end entails additional burdens upon the taxpayers of the State on account of the false economy practiced by previous legislatures in reference to the question of supplying adequate supplies and appropriations for the care of the insane in this State.

**OHIO.—Massillon State Hospital.**—Six new buildings are under way, namely, Nash Cottage and Cottages F, 1, 2, 3 and 6. Nash Cottage and Cottage F are now under roof and will be ready for occupancy by the middle of November. The former will be used as an infirmary building, and will accommodate 140 patients. The latter, for semi-chronic patients, will accommodate 60. The entire additional capacity of the six buildings now under construction will be 525. A new hospital building, with accommodation for 150, is now under consideration, and the next legislature will be asked for an appropriation to build same.

**—The Association of Assistant Physicians of Ohio State Hospitals.**—An Association of Assistant Physicians of Ohio State Hospitals was organized July 16, 1903, with twenty-five charter members. The meeting was held at the Columbus State Hospital, and was addressed by Dr. George Stockton, Superintendent of the Columbus State Hospital; Dr. A. P. Ohlmacher, Superintendent of the Ohio Hospital for Epileptics, at Gallipolis; Hon. H. H. Greer, President of the Board of Trustees of the Columbus State Hospital, and by others. Several Superintendents sent words of encouragement to those interested in the movement. The following officers were elected for a term of one year: President, Dr. Geo. T. Harding, Jr., First Assistant Physician of the Columbus State Hospital; Vice-President, Dr. James F. Kelly, of the Cleveland State Hospital; Secretary, Dr. Isabel Bradley, of the Columbus State Hospital; Treasurer, Dr. Nelson H. Young, of the Toledo State Hospital. Dr. Ralph W. Holmes, of the Ohio Hospital for Epileptics, at Gallipolis, was appointed Chairman of the Executive Committee.

The purpose of the organization is to improve the medical work in the State hospitals, by whatever means the association is able to use. Its membership will consist of active, associate and honorary members. The active members must be assistant physicians of at least one year's service in a State hospital of Ohio. These only will be allowed to vote and hold office. Associate members consist of superintendents, assistant physicians of less than one year's service, and of registered physicians who are connected with these hospitals as internes. Honorary membership may be conferred upon ex-superintendents, ex-assistant physicians, and such other reputable physicians as have shown a special interest in the treatment and care of the insane.

The first regular semi-annual meeting will be held on the first Wednesday in October at the Toledo State Hospital.

**PENNSYLVANIA.**—An announcement appeared in the last Summary of the introduction of a bill in the legislature of this State proposing a reorganization of certain State institutions—as hospitals for the insane, the State idiot asylums, State prisons, and perhaps other institutions. This bill was introduced by a special committee, and followed a visit and personal examination of some of the institutions in the State of New York. The committee in their report presented some account of the New York State institutions, and of the operation of the State Lunacy Law of that State.

It was proposed to abolish all of the present boards and to place their whole administration, with extraordinary powers, in the hands of "three respectable citizens." There were no other special qualifications enjoined in the selection of such administrators except "respectability." It was a radical measure, quite analogous to what are called in Pennsylvania "Ripper Bills." The bill presented was favorably reported, and referred back to the committee, where it still sleeps, and probably has lost its vitality. No information has reached the public whether this bill failed because of lack of appreciation of the New York system, or whether there was a lack of agreement about the "three respectable citizens."

The State legislature of 1903 passed an act, which was approved by the Governor, authorizing the commitment of habitual inebriates and habit cases to one of the asylums of the State on the order of a magistrate or a judge for a period not exceeding one year. This is an attempt to provide for the legal detention of such cases. In determining his action the magistrate or judge may summon two physicians to give testimony and a certificate, and also require the friends of the so-called patient to furnish evidence that they have made satisfactory arrangements for the support of such a person in a hospital. From time to time the right of review of the case by the court on a writ of habeas corpus is preserved. Thus far there has been no public report of the operation of the law.

**WISCONSIN.**—*Milwaukee Hospital for Insane, Wauwatosa.*—During the past six months quite a number of improvements, calculated to increase the efficiency as well as to add to the attractiveness of the hospital have been instituted and for the most part completed.

A new unit consisting of a sixty-five horsepower Corliss engine and a 500-light dynamo has been added to the plant.

Covered balconies on the first and second stories of the rear wings of the main building have been built and equipped with awnings. These balconies connect with the wards for disturbed cases on the first floor and with the hospital wards on the second floor, and are most service-

able, particularly to the sick and infirm, affording an ample opportunity of enjoying the sunlight and fresh air without the exertion of walking up and down stairs. It is the intention to enclose these balconies in glass, thus forming sun parlors for use during the winter season.

An open pavilion for the use of the women patients of the violent and disturbed class was built in the rear of the female wing of the building and has proven of great utility for this class, who are, as a rule, unable to enjoy the privilege of going to the grove. The grounds surrounding the pavilion have been turfed and otherwise beautified.

In the rear of the male wing concrete walks have been laid from the main building to the power plant and to the new industrial building, thus enabling the easy transportation of meals to the dining room for the laboring class of patients in the basement of that building.

The new sewing room in the power plant building over the engine room, with a floor space of 1000 feet, will shortly be ready for occupancy. The present sewing room will be added to the ironing room, which is greatly in need of additional space.

A laboratory is being established in rooms in the main basement with adequate equipment and pathological research will be prosecuted vigorously during the coming winter.

Last spring the work of beautifying the grounds east and south of the hospital buildings, comprising an area of about twenty acres, was begun and has been pushed rapidly during the summer. The plan contemplated the opening of the broad drive shaded by trees on both sides, originally laid out on the opening of the hospital, but never used; the construction of an artificial lake covering two acres in extent with an island connected by a rustic bridge, a rockery and waterfall, and an overflow in the shape of a winding stream spanned by rustic bridges, emptying into a natural ravine, forming cascades in its course and flowing into the river. Thus far the lake is practically completed and the grading around it nearing completion. The driveway has been opened up and will be in a state of completion by the spring. Likewise a road in the rear of the buildings intended for heavy teaming. These improvements in the grounds supply a long-felt want and will undoubtedly prove most soothing and salutary in their effects on the patients.

The position of Third Assistant Physician was created in July, and Dr. John C. Boyle, a graduate of the Wisconsin College of Physicians and Surgeons, was appointed to the position.

**DOMINION OF CANADA.—*The Asylum for the Insane, London, Ontario.***  
—During the last two years there have been numerous improvements taking place, all for the benefit of the gradually increasing population of this old institution.

Chief among these are the new Infirmary, which is a somewhat pretentious building consisting of a three-story central structure and a

two-story wing on each side. Each of the two side structures consists of two wards and is fitted up in the most modern style for the reception of about sixty males and females. At the end of each ward is a day room and a balcony the full width of the building. The central building, which is partially detached, contains the officers' and nurses' rooms, as well as a laboratory and museum. In the basement is a well-arranged autopsy room, and it is hoped with such facilities for pathological study the government may be induced to provide a well-paid pathologist to make use of the valuable material, which is but partially used at present. At the top of this building is a suite of rooms comprising an operating room, thoroughly equipped for doing modern aseptic surgery. A good deal of surgery has been done and is being done at this asylum with undoubtedly good results in many cases. It is hoped with the increased facilities much good work may still be done in suitable cases, which will not only benefit the patients physically, but consequently also mentally.

Another important work has been in operation for the last two seasons, viz.: the construction of a large water reservoir, which will be supplied by a series of springs. It is 300 feet long by 150 feet wide and nearly 9 feet deep, with the bottom and part of the sides cemented and the rest of the walls finished with cobblestones laid in cement. Capacity about 1,000,000 gallons. This will furnish an ample supply of water and pure ice.

Among the other improvements is the building of an industrial building 160 feet long by 33 feet wide and two stories in height. In this will be carried on all the industries of the institution.

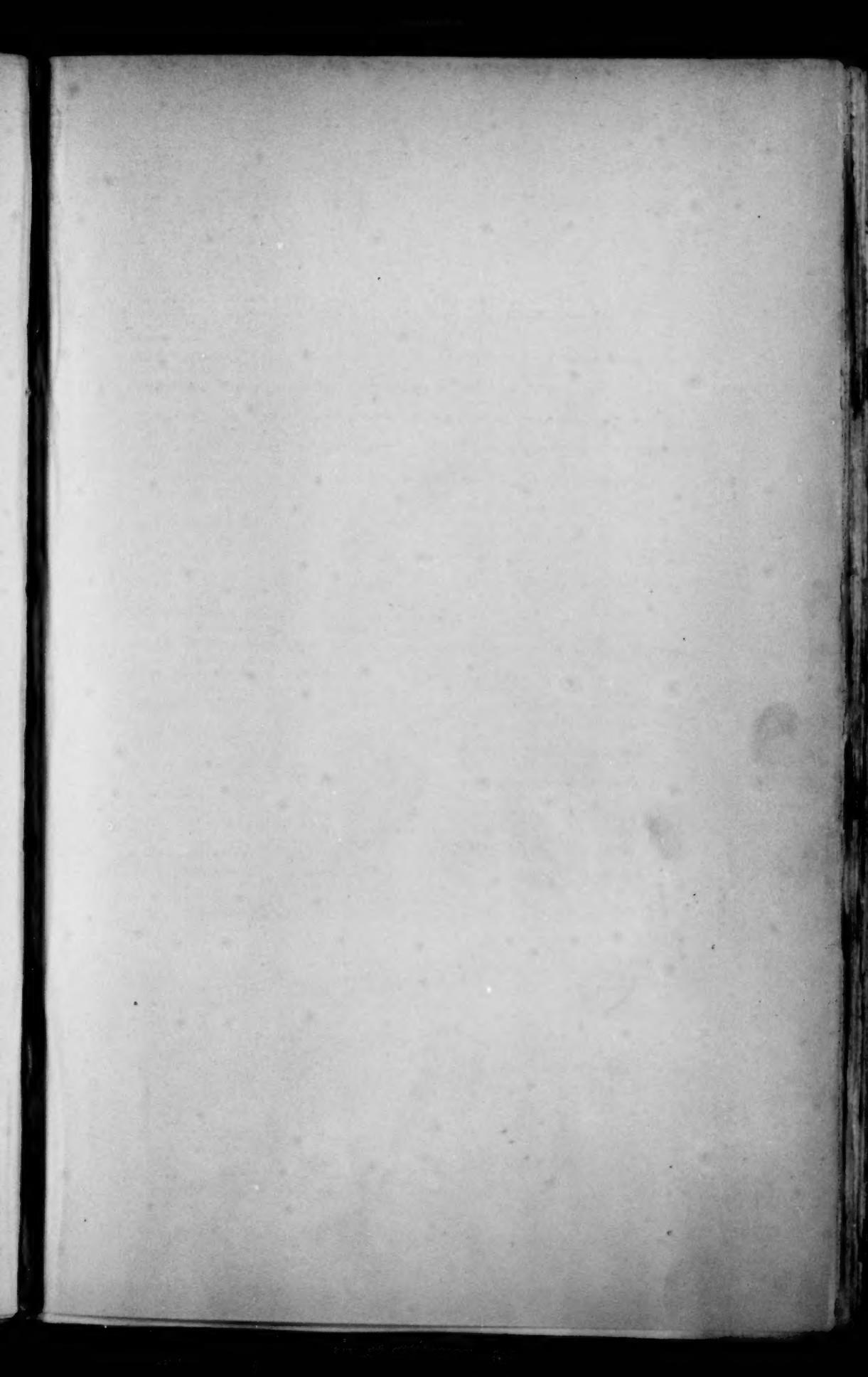
It is hoped that in the near future report may be made that it has been decided to build cottages for the tuberculous insane, and also a nurses' house, both of which are very much needed.

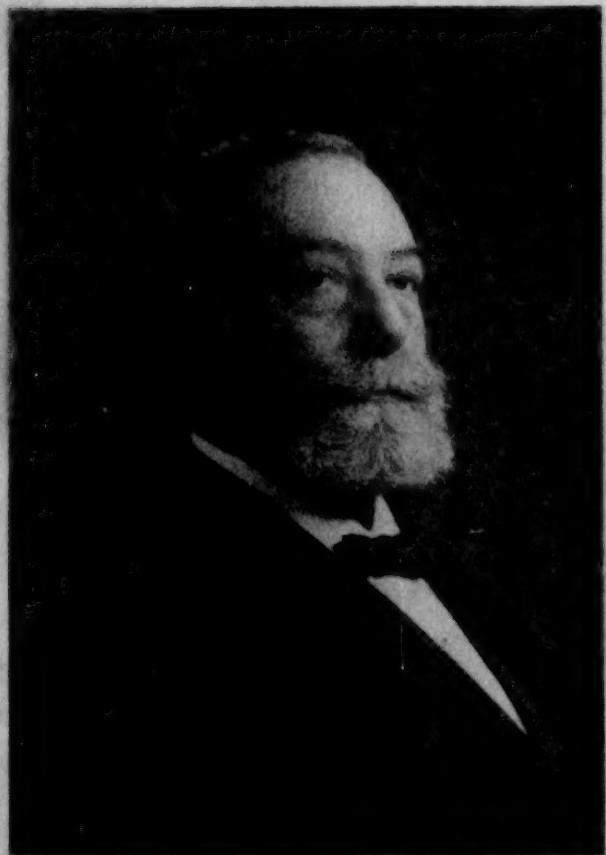
## Appointments, Resignations, Etc.

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- ANDREWS, DR. WARREN B., appointed Medical Interne at the Hudson River State Hospital, Poughkeepsie, N. Y.
- BOURDEAUX, DR. T. D., resigned as Assistant Physician at the East Mississippi Insane Hospital, Meridian, Miss.
- BOWERMAN, DR. EDWIN A., resigned as Assistant Physician at the Buffalo State Hospital, Buffalo, N. Y.
- BOYLE, DR. JOHN C., appointed Third Assistant Physician at the Milwaukee Hospital for Insane, Wauwatosa, Wis.
- BROWN, DR. E. C., appointed First Assistant Physician at the Massillon State Hospital, Massillon, O.
- BRUNK, DR. O. C., appointed Fourth Assistant Physician and Pathologist at the Central State Hospital, Petersburg, Va.
- CAPRON, DR. ARTHUR J., formerly Assistant Physician at the Long Island State Hospital, King's Park, N. Y., promoted to be Second Assistant Physician at the Long Island State Hospital, Flatbush, N. Y.
- CARD, DR. W. R., appointed Assistant Physician at the East Mississippi Insane Hospital, Meridian, Miss.
- COLLIER, DR. G. KIRBY, formerly Medical Interne, promoted to be Third Assistant Physician at the Craig Colony for Epileptics, Sonyea, N. Y.
- COSTELLO, DR. MICHAEL E., appointed Medical Interne at the Willard State Hospital, Willard, N. Y.
- COLVER, DR. CAROLINE B., resigned as Second Assistant Physician at the Massillon State Hospital, Massillon, O.
- EHLERS, DR. EDWARD A., formerly Clinical Assistant at the Long Island State Hospital, Flatbush, N. Y., appointed Junior Assistant Physician at the Connecticut State Hospital, Middletown, Conn.
- EMRICH, DR. E. L., resigned as First Assistant Physician at the Massillon State Hospital, Massillon, O.
- GARLICK, DR. JAMES H., appointed Second Assistant Physician at the Central State Hospital, Petersburg, Va.
- GORRIE, DR. GEORGE W., formerly Medical Interne, promoted to be Junior Assistant Physician at the Buffalo State Hospital, Buffalo, N. Y.
- GROSS, DR. HERMAN, appointed Medical Interne at the Craig Colony for Epileptics, Sonyea, N. Y.
- HARMER, DR. C. L., formerly Clinical Assistant, promoted to be Third Assistant Physician at the Massillon State Hospital, Massillon, O.
- HAWKES, DR. EVERETT M., appointed Clinical Assistant at the Manhattan State Hospital, West, Ward's Island, New York City.
- HENRY, DR. HUGH C., appointed First Assistant Physician at the Central State Hospital, Petersburg, Va.
- HINKLEY, DR. FRANK, formerly Medical Interne at the Long Island State Hospital, Flatbush, N. Y., promoted to be Junior Assistant Physician at the Manhattan State Hospital, Central Islip, N. Y.
- HOLDING, DR. ARTHUR F., appointed Junior Physician at the Manhattan State Hospital, West, Ward's Island, New York City.
- HOLMES, DR. CHARLES H., appointed Junior Physician at the Manhattan State Hospital, West, Ward's Island, New York City.
- HUME, DR. BENJAMIN L., resigned as Assistant Physician at the Central State Hospital, Petersburg, Va.

- HUTCHINGS, DR. RICHARD H., formerly First Assistant Physician, promoted to the Superintendency of the St. Lawrence State Hospital, Ogdensburg, N. Y.
- LONTZIAN, DR. JOHN L., appointed Medical Interne at the Manhattan State Hospital, West, Ward's Island, New York City.
- MACARTHUR, DR. CHARLOTTE B., appointed Assistant Physician at the Willard State Hospital, Willard, N. Y.
- MCGEOGE, DR. J. M., formerly Clinical Assistant, promoted to be Second Assistant Physician at the Massillon State Hospital, Massillon, O.
- MAGHER, DR. JOHN J. W., appointed Junior Physician at the Manhattan State Hospital, West, Ward's Island, New York City.
- MELVIN, DR. WALTER G., appointed Clinical Assistant at the Manhattan State Hospital, West, Ward's Island, New York City.
- MILLS, DR. GEORGE F., resigned as Junior Assistant Physician at the Buffalo State Hospital, Buffalo, N. Y.
- MONTGOMERY, DR. WILLIAM H., Junior Physician, transferred from the Craig Colony for Epileptics, Snyea, N. Y., to the Willard State Hospital, Willard, N. Y.
- ONUF, DR. B., appointed Pathologist at the Craig Colony for Epileptics, Snyea, N. Y.
- PARSONS, DR. FREDERICK W., formerly Medical Interne, promoted to be Junior Assistant Physician at the Hudson River State Hospital, Poughkeepsie, N. Y.
- PRITCHARD, DR. JOHN A., appointed Clinical Assistant at the Long Island State Hospital, Flatbush, N. Y.
- SANBORN, DR. CHARLES F., resigned as Assistant Physician at the Willard State Hospital, Willard, N. Y.
- SELLERS, DR. F. E., resigned as Third Assistant Physician and Pathologist at the Central State Hospital, Petersburg, Va.
- SHAVER, DR. F. A., appointed Assistant Physician at the Michigan Asylum for the Insane, Kalamazoo, Mich.
- SOMERS, DR. ELBERT M., formerly Second Assistant Physician, promoted to be First Assistant Physician at the St. Lawrence State Hospital, Ogdensburg, N. Y.
- SPITLER, DR. H. A., appointed Interne at the Central State Hospital, Petersburg, Va.
- STEIN, DR. ADOLPH, appointed Clinical Assistant at the Manhattan State Hospital, West, Ward's Island, New York City, and promoted to be Medical Interne at the Long Island State Hospital, Flatbush, N. Y.
- TALBOT, DR. R. S., appointed Third Assistant Physician at the Central State Hospital, Petersburg, Va.
- VAUGHN, DR. HARRY F., appointed Clinical Assistant at the Massillon State Hospital, Massillon, O.
- WALDO, DR. LOUIS T., formerly Junior Physician, promoted to be Assistant Physician at the Willard State Hospital, Willard, N. Y.
- WARREN, DR. DAVID E., resigned as Second Assistant Physician at the Long Island State Hospital, Flatbush, N. Y.
- WEATHERHEAD, DR. GEORGE F., appointed Second Assistant Physician at the Protestant Hospital for the Insane, Montreal, Quebec.
- WHITE, DR. WILLIAM A., formerly First Assistant Physician at the Binghamton State Hospital, Binghamton, N. Y., appointed Medical Superintendent of the Government Hospital for the Insane, Washington, D. C.





P.-R.-M.-H.-L.